

Arch 464
ECS
Spring 2009

Name _____

Quiz #4

"Trial of Two Halls"

Read and look at everything before you write!

For this problem you are an acoustics scholar eager to compare two new performance halls—the Copenhagen Concert Hall, home of the Danish National Symphony Orchestra, designed by Ateliers Jean Nouvel with Nagata Acoustics and Dallas' Margot and Bill Winspear Opera House, home of the Dallas Opera Company, designed by Foster + Partners with Sound Space Design.



The Copenhagen Concert Hall is shielded by a diaphanous blue cube and sits water's edge on the outskirts of downtown.

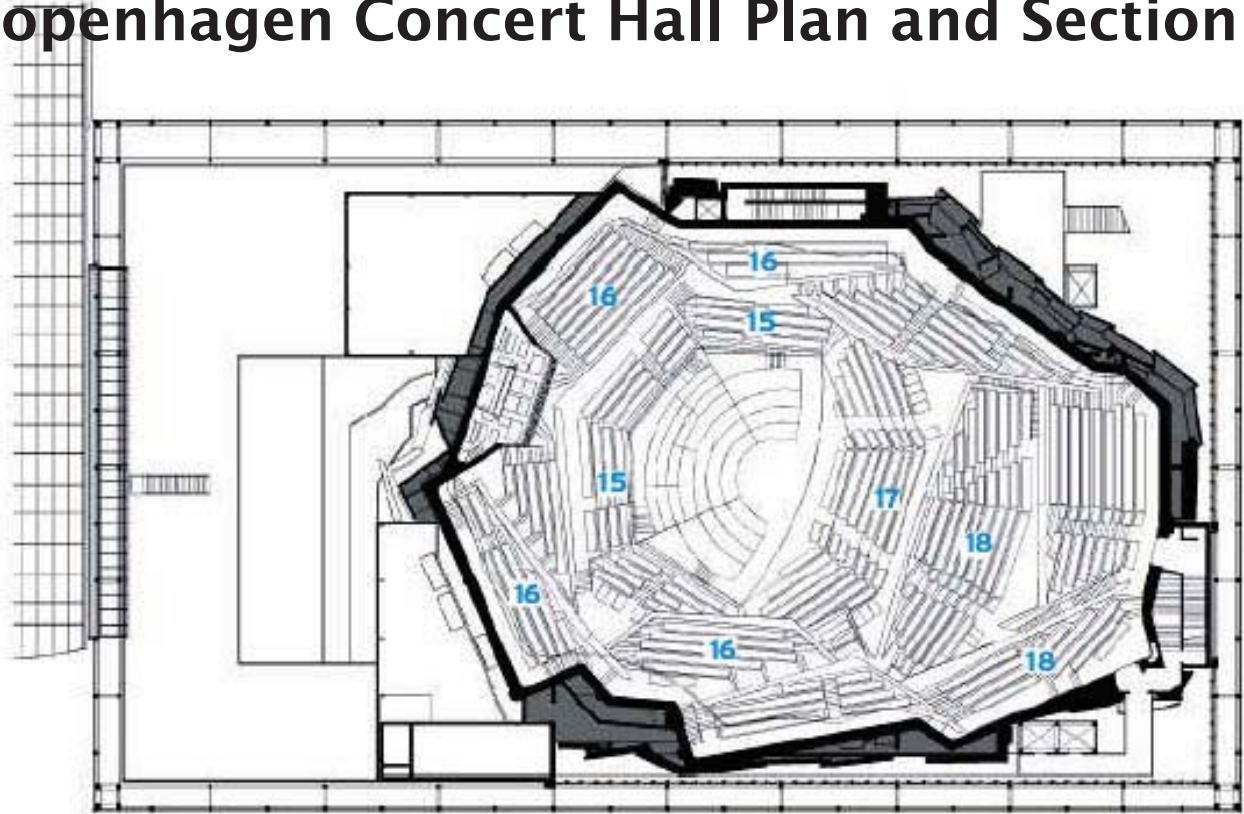


The Winspear Opera House's cylindrical red form is shielded by an exterior shading device next to a pool in Dallas' arts district in the heart of downtown.

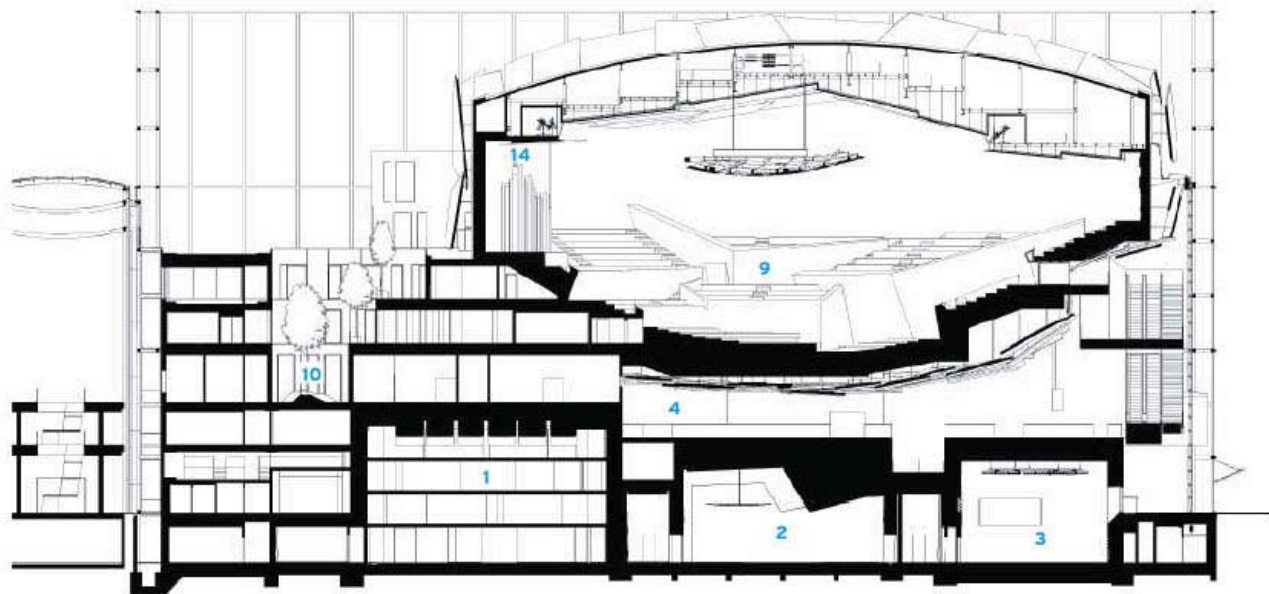
The 990,000 cubic foot Copenhagen Concert Hall seats 1809 in a vineyard configuration. The building also includes a symphony rehearsal hall (studio 2) and a black box theatre (Studio 3).

The Winspear Opera House seats 2,000 atop a displacement ventilation system in the classical horseshoe configuration that puts the most distant seat 90' from the action on stage.

Copenhagen Concert Hall Plan and Section



LEVEL EIGHT



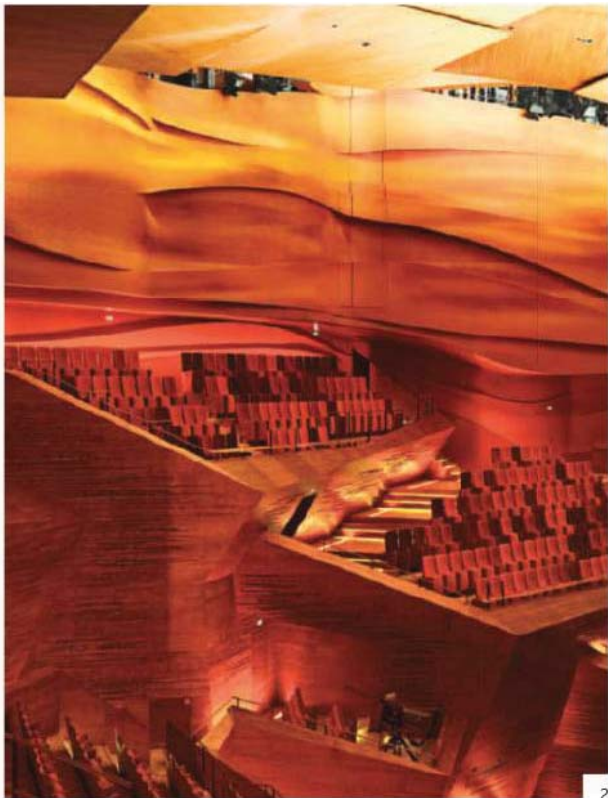
SECTION A-A

0 10 FT.
3 M.

Key: 1. Studio 2; 2. Studio 3; 3. Studio 4; 4. Lobby; 5. Music Rooms; 6. Restaurant; 7. Archive; 8. Offices; 9. Grand Hall (Studio 1); 10. Courtyard; 11. Production Control; 12. Lower-Level Lounge; 13. Lighting Control; 14. Organ; 15. Orchestra Seating; 16. Terrace Seating; 17. Parterre; 18. Balcony

1. Answer the following questions based on review of the plan, section, and images.
 (a) What's another classification for a vineyard hall? (b) Is it appropriate for the intended use? Explain your position and cite precedent. (c) Point out and explain 3 acoustic features that contribute to high-quality sound in the hall. (You may continue your answer on page 6.)

5 points

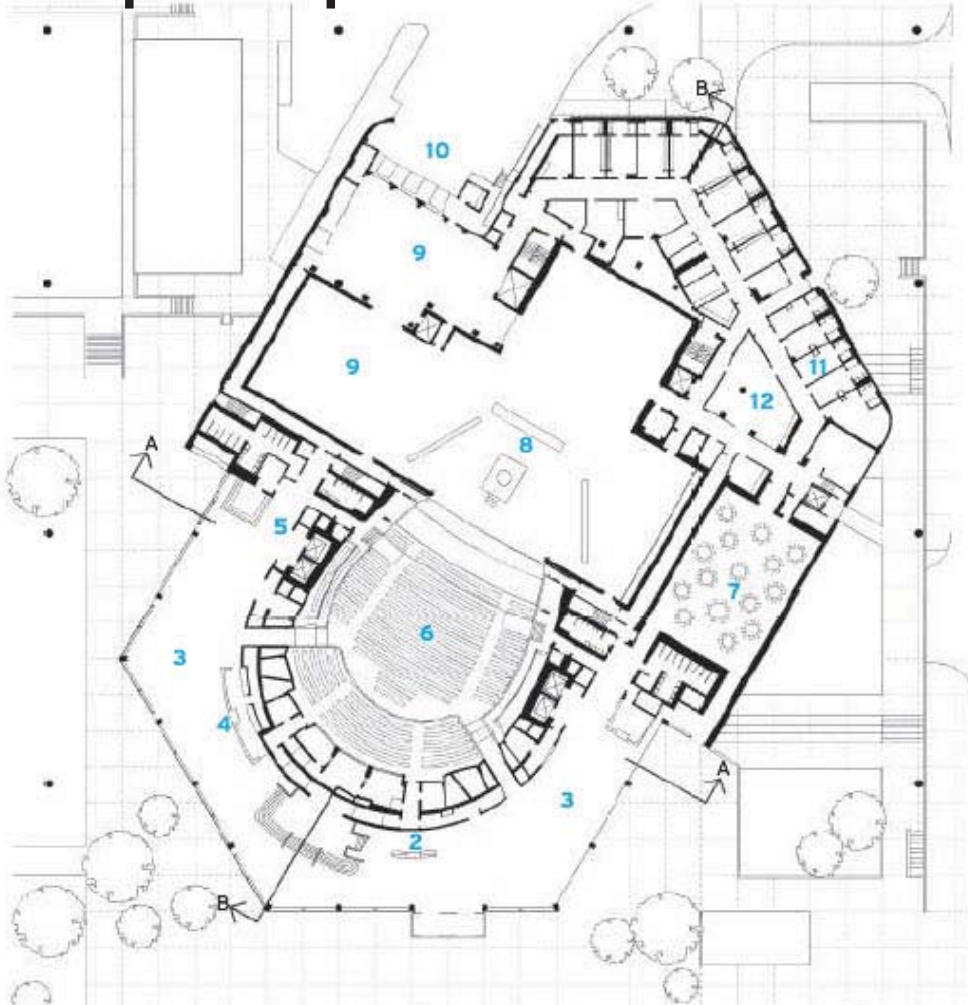


(left) Contoured "wave" walls of layered gypsum board surround the hall.

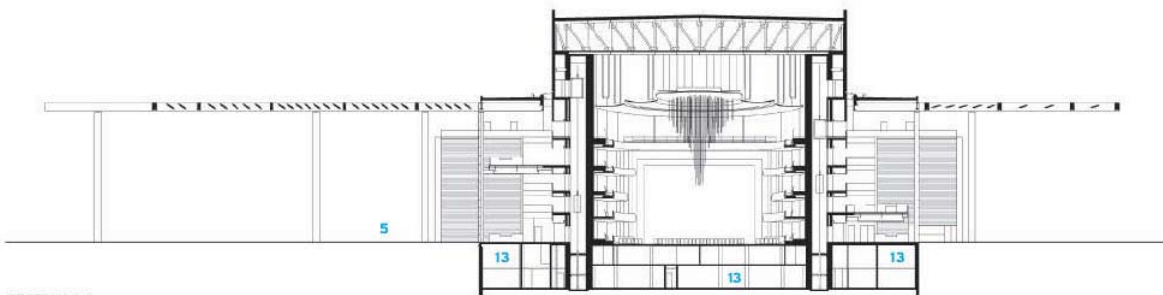
(Below) The vineyard plan arranges terraces of seating around the stage.



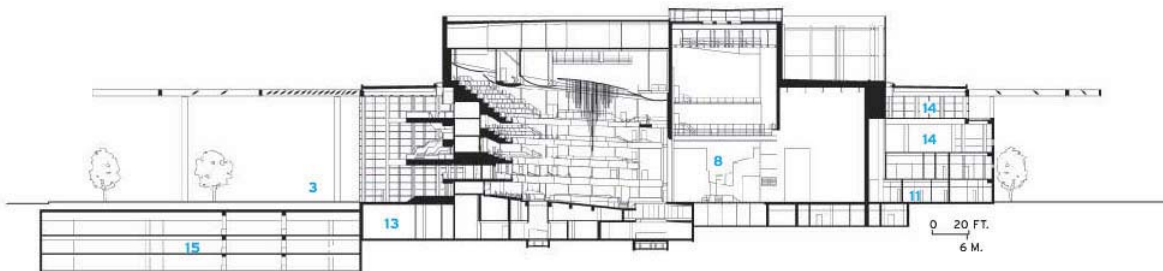
Winspear Opera House Plan and Section



Key: 1. Access from Parking; 2. Reception; 3. Lobby; 4. Long Bar; 5. Box Office; 6. Seating;
 7. Reception Hall; 8. Stage; 9. Scene Dock; 10. Truck Dock; 11. Dressing Room; 12. Green Room;
 13. Plant; 14. Offices; 15. Parking



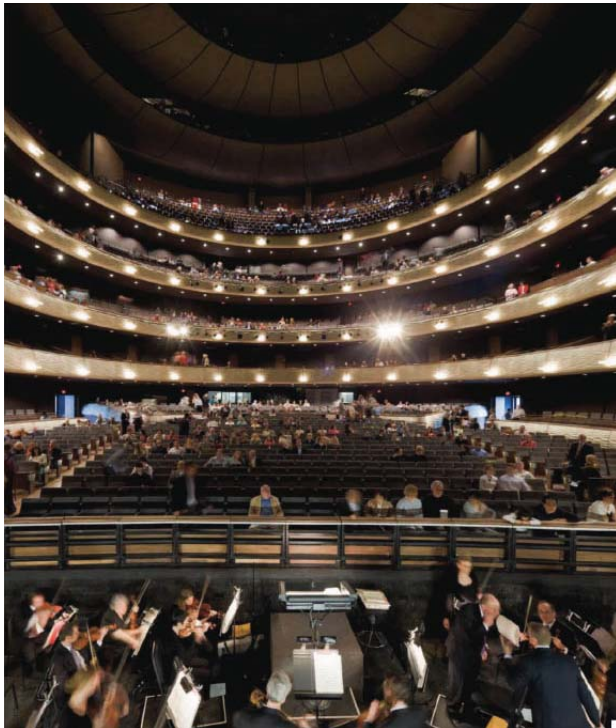
SECTION A-A



SECTION B-B

2. Answer the following questions based on review of the plan, section, and images.
(a) What's another classification for a classic horseshoe hall? (b) Is it appropriate for the intended use? Explain your position and cite precedent. (c) Point out and explain 3 acoustic features that contribute to high-quality sound in the hall. (You may continue your answer on page 6.)

5 points



(above) Detail of the balcony facade relief pattern.



Copenhagen Concert Hall (cont.)

Dallas' Winspear Opera House (cont.)