Arch 463
ECS
Fall 2022 **Name**_____

Quiz #2

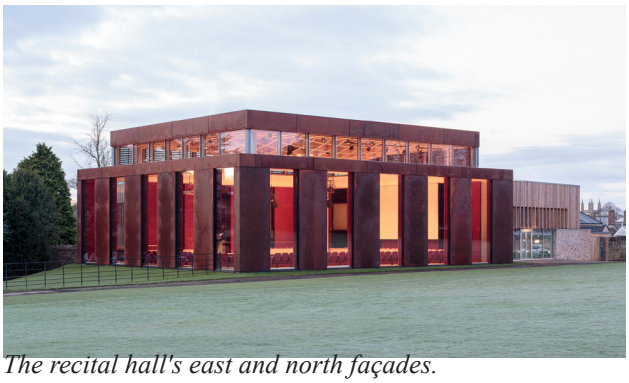
"Sun Falling on Cedars Hall"

All images and drawings from The Architect's Journal, 10 May 2018

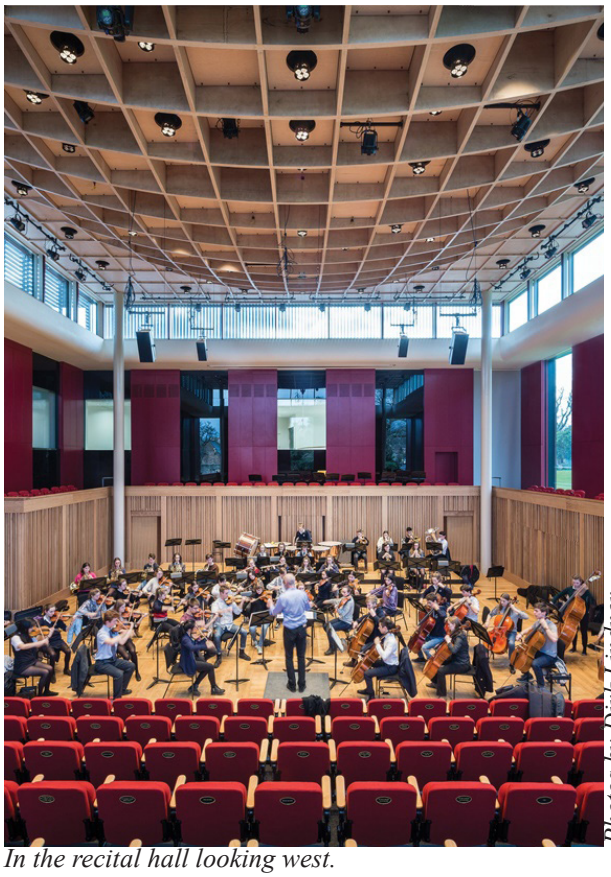
North façade of Cedar Hall with the rest of the school and the cathedral in the background.

For this problem you are the building envelope consultant for Wells Cathedral School. The new Cedars Hall building by Eric Perry requires some fine tuning of its apertures to provide more visual and thermal comfort to its recital hall. Your recommendations for change should be subtle and in line with the architect's design intentions. The pallette of materials in the table on pages 4 & 6 has been agreed upon as appropriate.

Climate Context. Wells, Somerset, which is near Bristol, has cool humid winters and warm humid summers. Summer weather tends to be less cloudy than other seasons, but still averages 60% cloud cover. Prevailing winds are from the SW. You may check out the climate with *Climate Consultant* if you need to.



The recital hall's east and north façades.



Photos by Dirk Lindner

In the recital hall looking west.

Eric Parry's music facility at Wells Cathedral School

The monolithic, column-like blocks and shifting screens of Edward Gordon Craig's revolutionary theatre sets were clearly preoccupying Eric Parry while he was designing Cedars Hall, a new music facility for Wells Cathedral School in Somerset. Pavilion-like, it makes few obvious visual concessions to its historic surroundings. Its 'screens'—vast 5.5 x 2 meter sections of Cor-ten steel—are dug in to the edge of the school's sports field, their burnt orange stark against the pruned grass. Pale Bath stone this is not; nor is it modest, with the glass slices between the Cor-ten demanding attention or, at the very least, curiosity. In true Gordon Craig style, these static elements are arranged as if to combine with and supplement the performance within, a dramatic frame for a recital that, to anyone watching from outside, is completely silent.

Put simply, it is not the first thing you'd expect to see in this impeccably well-groomed and auspicious of landscapes. Wells Cathedral School itself likely needs no introduction. The private school is one of the world's oldest, and one of only five in the UK to offer specialist musical education to school-age children. It occupies various structures dating from the 12th to 19th centuries, which have over the years knitted together to create a sense of timeless harmony that Cedars Hall gleefully disrupts.

Cedars Hall has two main components: the almost-square Cor-ten form of the recital hall; and an adjacent, slightly lower, timber structure, housing rehearsal, observation and teaching spaces, with a concave southern edge that takes its cue from the listed Liberty Wall which runs into it. Depending on the angle, the combination of the two at times falls short of being convincing. When set directly against the recital hall's boldness, the wooden element's concession to contextual colour and texture becomes almost meek. It proves more effective to the south, where it appears as an extension of the Liberty Wall, framed by silvery cedars. Internally, where the two merge, is less problematic. Extending to the east of the plan Liberty Wall also defines the entrance into the spaces, digging down slightly beneath the field and giving a glimpse of the corner of the performance hall before leading to a foyer, top-lit by skylights that again take their cue from the line of Liberty Wall.

In the recital hall beneath the north-facing glazing.

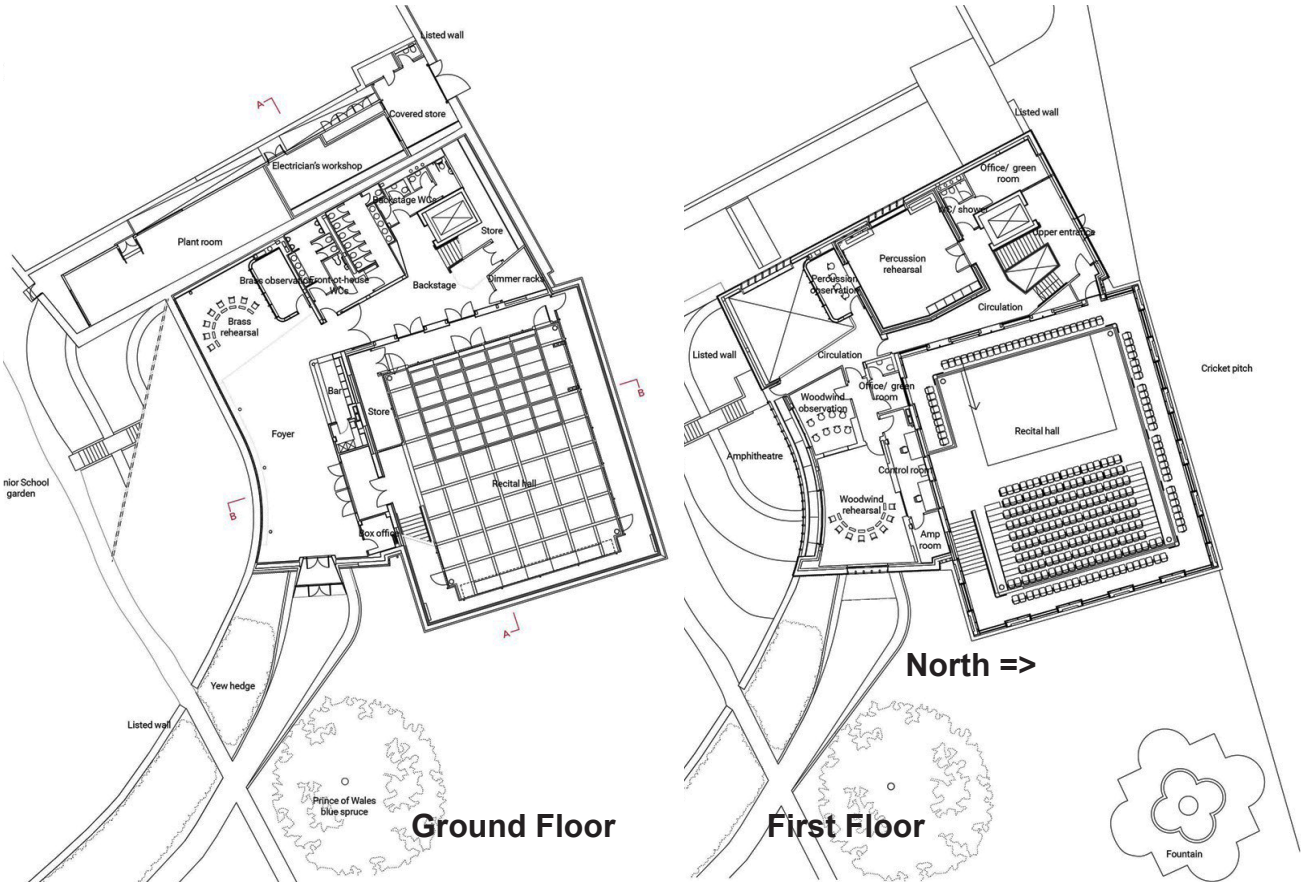
It is unique that a concert hall should court such a relationship to the outside, and this is where the project's primary conceptual expression is found. The hall is buried slightly, with the audience and performers sitting cosseted below ground level as light floods in from both the vertical glazed sections and from the clerestory above. This primarily serves to ensure the relationship to the exterior is not too fierce nor distracting; the view out is one of trees and sky, and the view in is of the upper rows of seats or heads, completed when looking back southwards by the cathedral itself looming in the background.

Incorporating such a high proportion of glazing in a space requiring high levels of acoustic performance was not a straightforward decision, and the acoustic insulation was in fact slightly lowered for budgetary reasons. It is still able to withstand the impact of a stray cricket ball, and the silent observation the glass affords – be it of performers inside or of sport being played on the field – is a slightly uncanny one. As Parry describes it, the desired effect is one where 'people will eventually stop looking at the building, and will look at the gaps'.

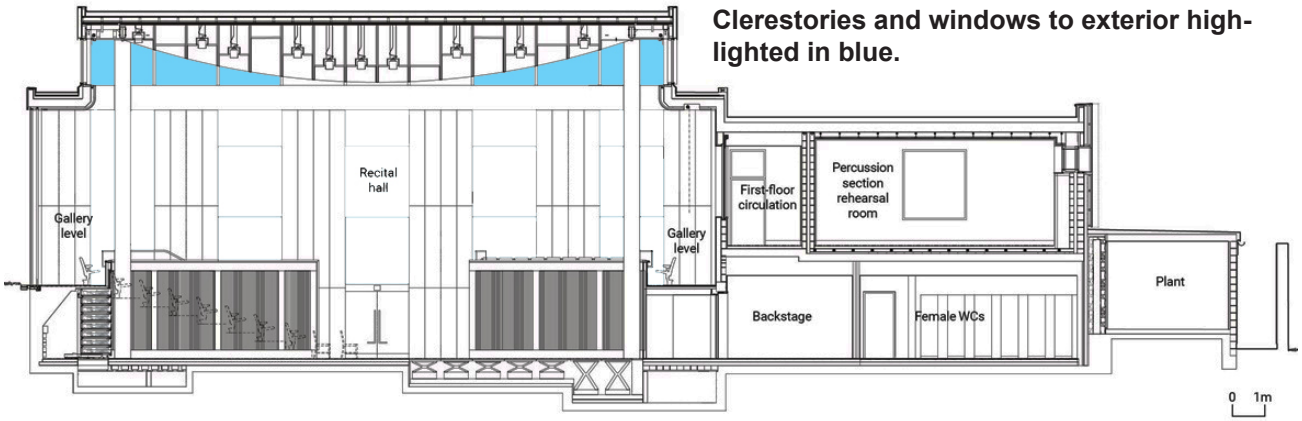
Inside the hall, red panels line the reverse of the Cor-ten sections, still appearing chunky and monolithic. The ceiling structure – referred to as 'pregnant' – bulges out into the hall, Cronenberg-like, designed to increase low-frequency sound diffusion and also helping to lend more intimacy to what is otherwise a very exposed space.

This devotion to pushing the performances front and centre has paid off, even if it comes at the expense of the teaching spaces being relatively hidden, when they, too, would benefit from some of the confident openness of the recital hall. These spatial gripes do not detract from what is a hugely effective new facility for the school, and the message it wants to send is clear: that whatever is going on beyond these vast windows will certainly be worth watching and listening to.

—Jon Astbury, The Architect's Journal, 10 May 2018

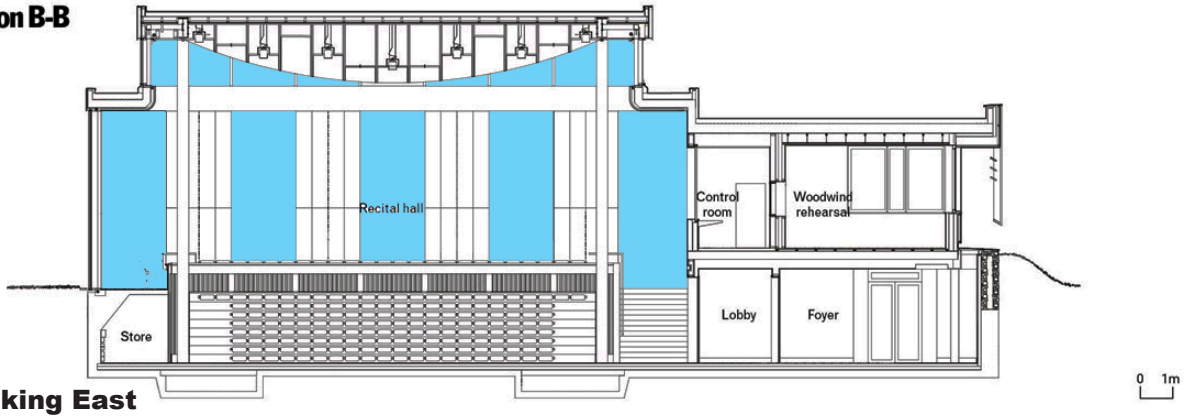


Section A-A **Looking South**



Clerestories and windows to exterior high-lighted in blue.

Section B-B



Looking East

East Façade

6 points

1. **The east-facing clerestories and windows require protection from the morning sun.** ***Call out*** your choices for the fixed-glass windows and clerestories. ***Illustrate and call out*** your shading device design choice. Use the figure to the right for the call-outs and shading device sketches. ***Explain why*** your design is appropriate for this façade.

Glazing	Shading
Kalwall, 3” silica aero-gel insulating glazing	Horizontal overhangs
Biochromatic glazing	Horizontal perforated steel louvres
Bronze reflective glass	Horizontal PV panels
Sage electro-chromatic glass	Vertical fritted glass fins
Heat mirror low-e glazing (commercial)	Vertical Cor-ten fins
Fritted glass	Egg-crate brise soleil

North Façade

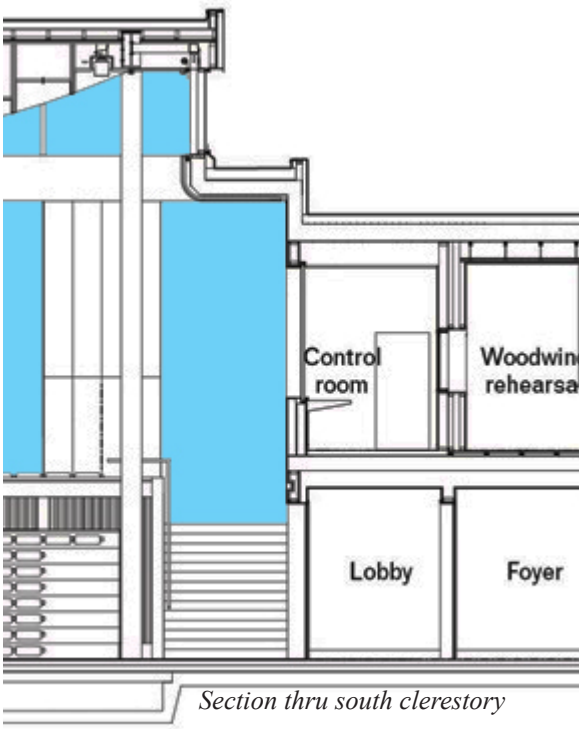
6 points

2. The north façade faces 10º west of true north, thus requires control of late afternoon summer sun. ***Call out*** your choices for the fixed-glass windows and clerestories. ***Illustrate and call out*** your shading device design choice. Use the figure to the right for the call-outs and shading device sketches. ***Explain why*** your design is appropriate for this façade.

South Façade

4 points

3. The south side of the recital hall only has clerestory windows to the exterior. These need sun protection. ***Call out*** your choices for the clerestories. ***Illustrate and call out*** your shading device design choice. Use the east-facing section to the right for the call-outs and shading device sketches. ***Explain why*** your design is appropriate for this façade.



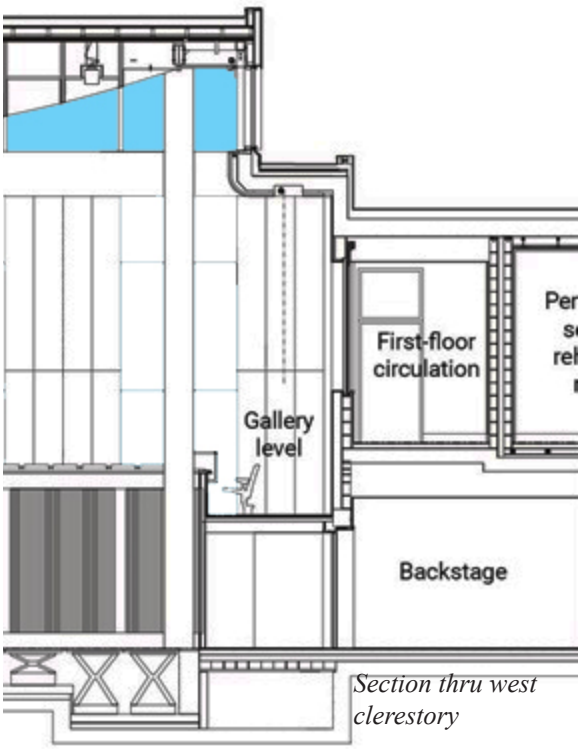
Section thru south clerestory

Glazing	Shading
Kalwall, 3” silica aero-gel insulating glazing	Horizontal overhangs
Biochromatic glazing	Horizontal perforated steel louvres
Bronze reflective glass	Horizontal PV panels
Sage electro-chromatic glass	Vertical fritted glass fins
Heat mirror low-e glazing (commercial)	Vertical Cor-ten fins
Fritted glass	Egg-crate brise soleil

West Façade

4 points

4.The west side of the recital hall only has clerestory windows to the exterior. These also need sun protection. ***Call out*** your choices for the clerestories. ***Illustrate and call out*** your shading device design choice. Use the south-facing section to the right for the call-outs and shading device sketches. ***Explain why*** your design is appropriate for this façade.



Section thru west clerestory