

Arch 464
ECS
Spring 2016

Name _____

Quiz #4

"Manchester United—Music and Art"

Read and look at everything before you write!



Illustrations and text from Architectural Record 04:16.

For this problem you are an acoustics consultant to the Whitworth Gallery's director who is planning a gala involving chamber music performed for an audience of 100 in the central exhibition gallery (6) and a reception for 100 people in the café (9).

She wants to treat her patrons with performance by an excellent local woodwind quintet in the gallery setting, surrounded by fine music, fine art, and the full moon streaming moonlight through the skylights.

After the performance she wants everyone to segue to the naturally ventilated and moonlighted café to relax and discuss the arts over drinks and appetizers.

Your mission is to make her vision come true!

The Whitworth

Manchester, England

The Whitworth Gallery, in England's booming second city, Manchester, is a cultural institution that took a walk in the park back in 1889—it was the first English art museum to adopt a parkland rather than urban setting—and now has taken another. The story is a familiar one: venerable creaking-at-the-seams regional establishment receives total makeover and expansion to accommodate a growing collection and audience. But it is rarely done so convincingly as this. Its ingenious addition embraces the landscape and transforms the old building, in what is the breakout project for its architects, MUMA. MUMA's big move was to interweave building with landscape at the rear. Originally, the Whitworth was in the 20-acre Whitworth Park but not of it, remaining resolutely blank-walled but for its set-back street frontage. A good mid-1960s rearrangement by architect John Bickerdike began to put that right. He inserted big windows in the previously blind arcade on the south side, providing views across the park. The new architects noticed how visitors tended to move toward the view and resolved to integrate the building more fully with its setting. As McKnight puts it, "The extension not only connects with the park, creating an outdoor gallery—the Art Garden—it also acts as a pressure relief, allowing us to reconfigure and rationalize the existing building."

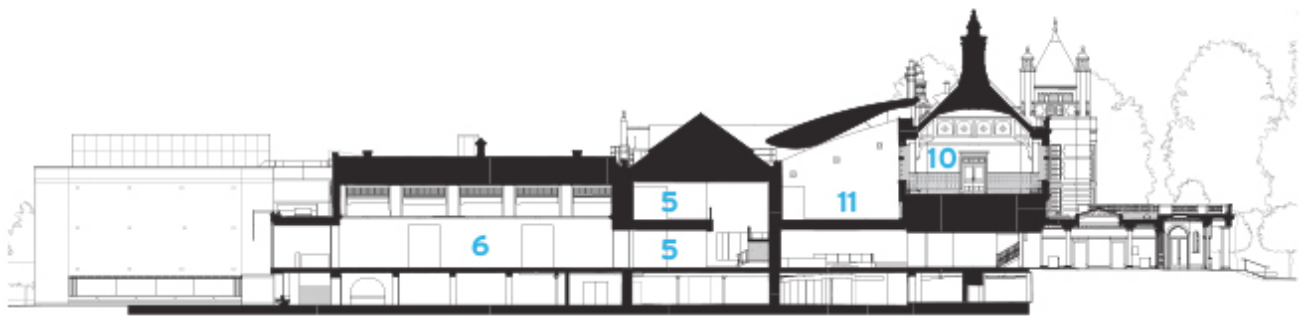
The original structure terminated with the blank brick ends of three barrel-roofed galleries, set above a semi-basement. MUMA has spliced a 21,200-square-foot, H-shaped extension onto this, providing circulation space to either side and via a broad glass-walled ambulatory across the ends of this new series of galleries. This is protected from the southwesterly sun by a filigree brise-soleil made of slender vertical strips of stainless steel. A pair of two-story wings extends westward: one, on a side street, contains a large red-brick-clad gallery, used often for display of the museum's collection of landscape drawings and paintings, with a library and study center beneath, while the other is a delicate, Miesian rectangular box of a restaurant, high enough to feel as if it is in the canopy of the park's trees. It cantilevers beyond the end of the level beneath (an education center) and has an upward-folding glass end wall, allowing it to open up to the outdoors in summer.

The ambulatory and restaurant are rendered ethereal by triangular flanking columns in highly polished stainless steel. The new brick elements, meanwhile, are textured, even "stitched," with white ceramic insertions in a nod to the museum's textile collections. The final move was to lower the semi-basement to give a proper story height to this new parkside entrance to the museum, behind which is the new Collection Centre on the same level. As with much that MUMA designed, says the museum's director, Dr. Maria Balshaw, this was not in her original list of asks. "Did it exceed the brief?

Yes, it did, in unexpected ways. It's really changing the way we operate," she says. "We didn't think how amazing it would be, for instance, to have everything in the collection on one level. The Collection Centre area—a bonus spot—has become one of the most popular parts of the building." Its creation also resulted in an important shift in the original building; the high daylighted volume of the Grand Hall, where collection storage had been moved in the 1970s, has now been recovered as a place for lectures and events. Prior to this reworking of the Whitworth, all visitors came and went via the original entrance, which was often congested with deliveries, school groups, and a busy café. Now, says Balshaw, museumgoers use the back entrance almost as much as the front, espe-

cially in summer months—understandably, given the Art Garden between the two new rear wings, landscaped by Sarah Price. This is edged with benches, carved from Purbeck limestone, integrated with the architecture between building columns. Inside the lower ambulatory, the benches are duplicated in oak. “It’s a convivial place,” says Balshaw. Buried deep beneath it is a phalanx of “earth tubes” cooling the inlet air to the building so that air-conditioning is not needed. This and ground-source heat pumps are key to the reworked building’s gaining a BREEAM “Excellent” from the UK’s BRE Environmental Assessment Method, a rating considered more difficult to achieve than LEED Gold. By eliminating high-energy-consumption mechanical cooling and humidity-control devices, overall carbon emissions are reduced by 10 percent even though the building is now almost a third larger, with doubled public areas and visitor numbers. The new museum is effectively two interconnected buildings back-to-back. Although the older portion has been lightly refurbished and is now served by elevators to all levels, inevitably it is the addition that provides the main draw. Once forbidding, the Whitworth has become informal and approachable. And as befits the museum’s collecting tradition, it is a work of craft as much as architecture.

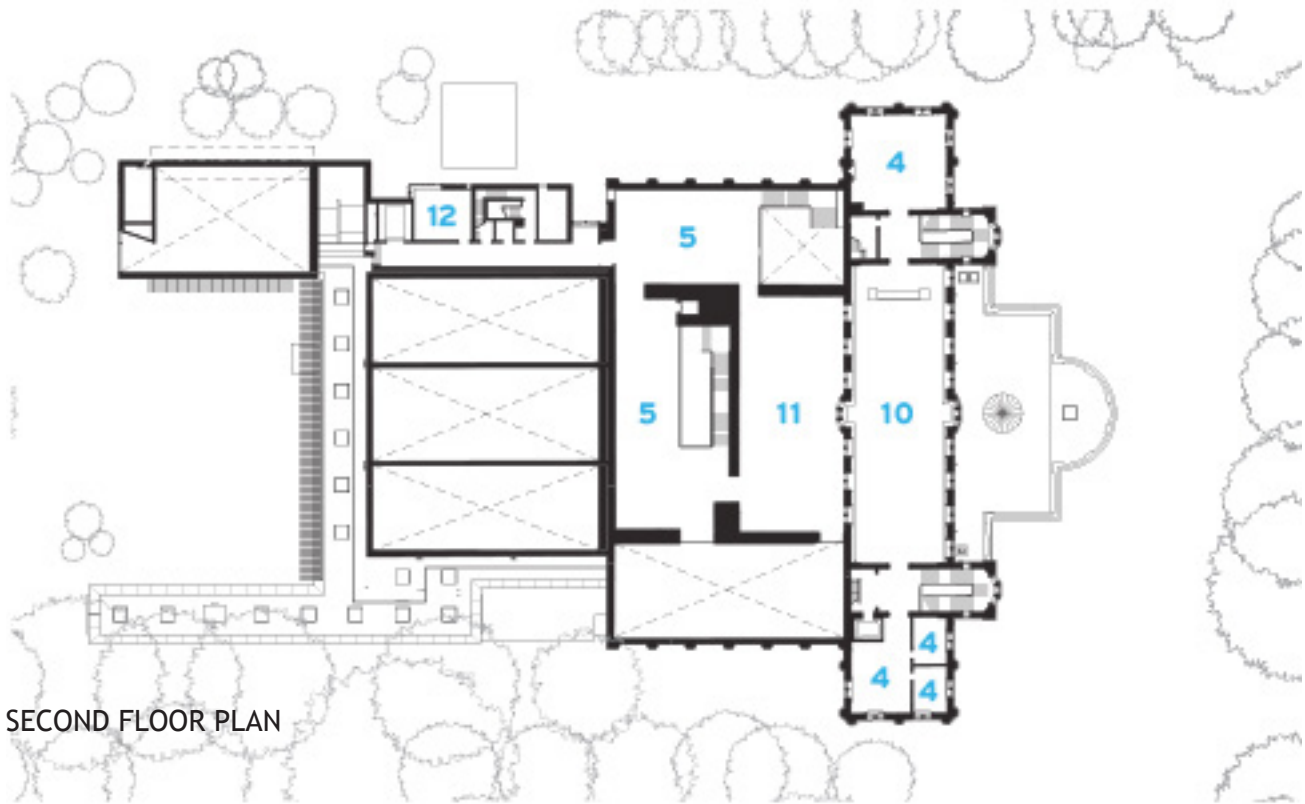
— Hugh Pearman



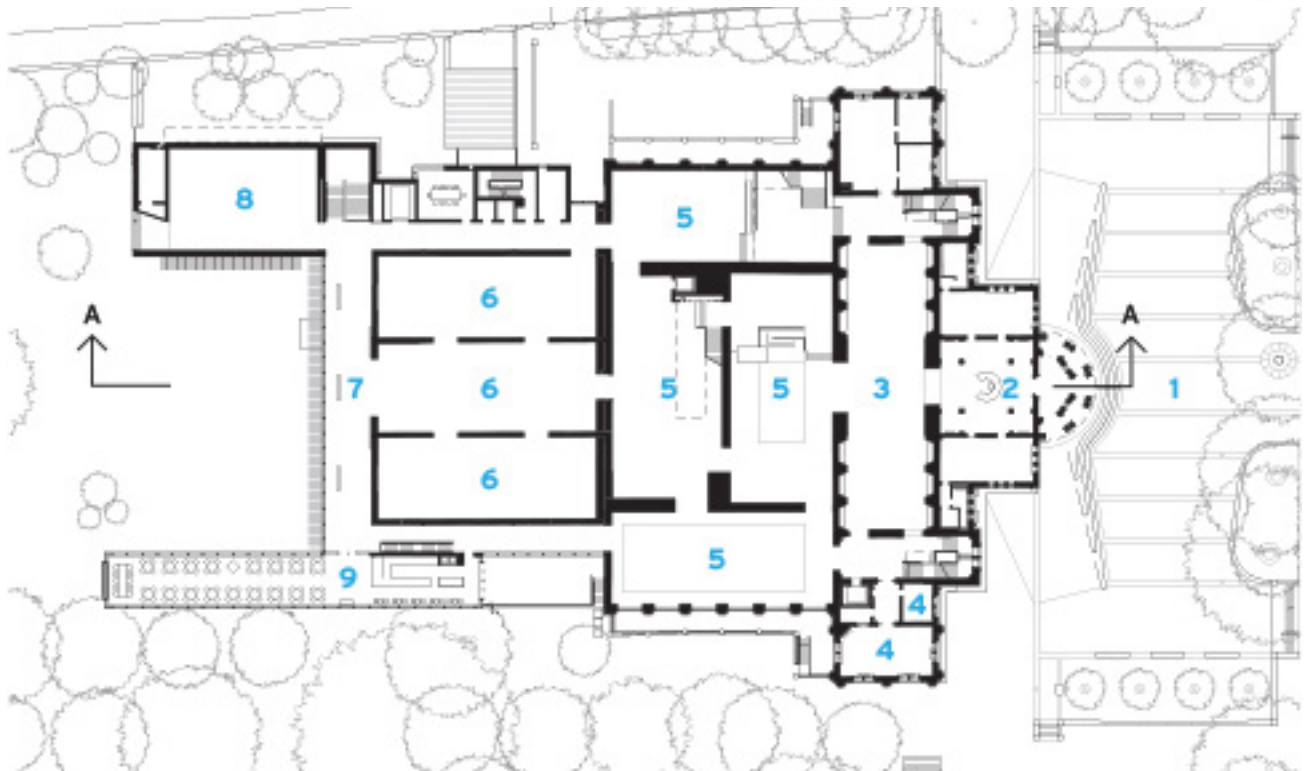
SECTION A - A

0 50 FT.
15 M.

- | | |
|------------------------|---------------------|
| 1 SCULPTURE TERRACE | 7 PROMENADE GALLERY |
| 2 ENTRANCE HALL | 8 LANDSCAPE GALLERY |
| 3 TEXTILE GALLERY | 9 CAFÉ |
| 4 OFFICE | 10 GRAND HALL |
| 5 COLLECTION GALLERIES | 11 SCULPTURE COURT |
| 6 EXHIBITION GALLERIES | 12 MEETING ROOM |



SECOND FLOOR PLAN



GROUND-FLOOR PLAN



1 Sculpture Terrace, 2 Entrance Hall, 3 Textile Gallery, 4 Office, 5 Collection Galleries, 6 Exhibition Galleries, 7 Promenade Gallery, 8 Landscape Gallery, 9 Café, 10 Grand Hall, 11 Sculpture Court, 12 Meeting Room

Analysis

1. What is the acoustic goal for the chamber music performance?

5 points

2. What are the advantages (describe 1) and the disadvantages (describe 1) for the Central Exhibition Gallery in meeting the goal?



6 Central Exhibition Gallery, looking west. The floor-mounted art will be removed for the performance. Also see exterior perspective on pg 6.

Design

3. Draw a floor plan and section perspective below to show your recommendations for improving the acoustic quality of the gallery for the performance. Also show where you'd place the musicians and audience. Annotate and explain your design.



Above: Garden view of the fully glazed Promenade Gallery with the Central Exhibition Gallery visible in the background.

Below: The all-glass Café with its operable window prominently featured, Art Garden, and Landscape Gallery as viewed from Whitworth Park.



Analysis

1. What is the acoustic goal for the reception?

5 points

2. What are the advantages (describe 1) and the disadvantages (describe 1) for the Café in meeting the goal?



6 Café, looking west. The tables and chairs will be removed for the reception and replaced by buffet tables for appetizers and drinks. Also see exterior perspective on pg 6.

Design

3. Draw a floor plan and section perspective below to show your recommendations for improving the acoustic quality of the café for the reception. Also show where you'd place the three buffet tables. Annotate and explain your design.