Arch 464
ECS
Spring 2023

Name_____

Quiz #1

Light and the Landscape Artist

For this quiz you are daylighting advisor/critic for the Gainsborough's House Museum.

All images: Nick Hufton & Jack Hobhouse *Architects Journal*, 11 Jan 2023,

Gainsborough's House entry façade. It faces south.

Our project transforms Gainsborough's House, in the Suffolk town of Sudbury, into an international center for the 18th-century artist Thomas Gainsborough at the site of his birthplace and childhood home. The new center opens access to the world's most extensive display of work by Gainsborough. Displays explore the inspiration of the Suffolk landscape on Gainsborough, Constable, and more recent artists, such as Cedric Morris.

The £10 million transformation, supported by the National Lottery Heritage Fund, includes a new building as well as renovation and reconfiguration of the Grade I-listed historic townhouse and a restructuring of the whole museum campus.

Context. Gainsborough's House is located in Sudbury at 52º NL. It has a humid climate dominated by cloudy days throughout the year. Summers are mild/humid and winters are cool/humid.

READ THE ENTIRE QUIZ BEFORE YOU BEGIN!

Architect's view

The new building adds galleries, an entrance, and activity spaces to the museum complex. It replaces a 1930s labor exchange on a semi-industrial site in the centre of the town, located between a large silk weaving factory and smaller-scale buildings in Weavers Lane. Its exterior is built of locally hand-made brick, knapped flintwork, and Cor-ten steel, under a copper roof.

View of northeast corner showing the large window into the landscape studio.

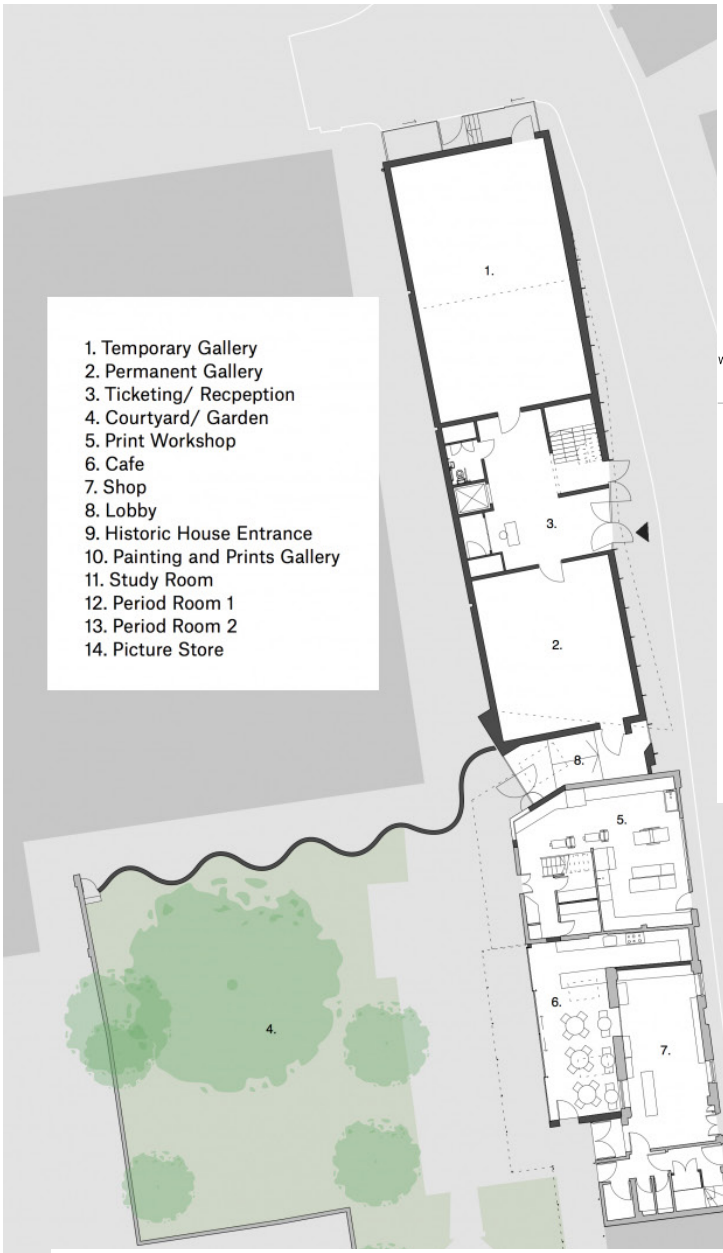
An overriding principle in our design approach was to use self-finished materials that develop with age and require little maintenance. We became fascinated by the material qualities of Sudbury's townscape and the process of silk weaving in the town. Discovering that two miles away there is a brickyard producing handmade bricks with clay dug from its land, and that flint was scattered across the fields, we decided to develop a building that used materials directly from Gainsborough's Suffolk landscape. We added rusted, Cor-ten steel and a copper sheet roof, liking the muted weathered coloring and copper's ability to deal with the complexities of the roof form of varying roof pitches, valley gutters, skylights as well as its association with the adjacent factory building.

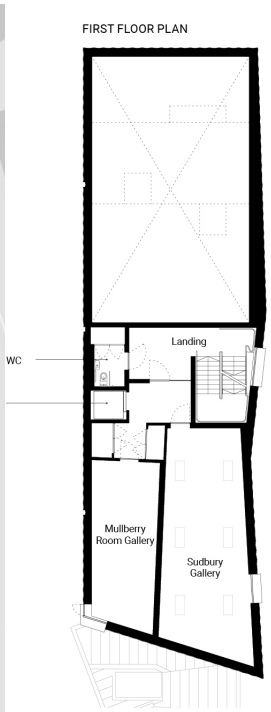
The building rises to three stories with the Landscape Studio on the top floor featuring a picture window giving a panoramic view over Gainsborough's landscape. The new building's rising zig-zag roof form creates a tall, sky-lighted temporary exhibitions gallery at ground floor and a folded ceiling profile over the Landscape Studio.

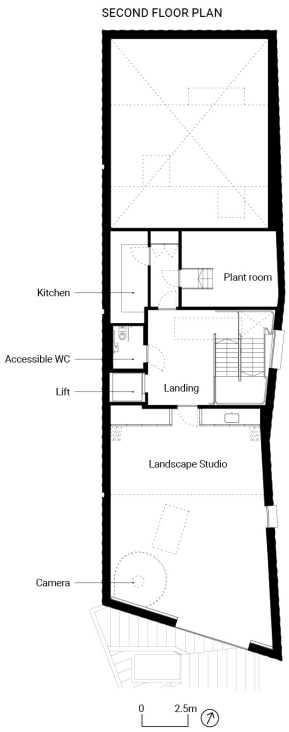
With the opportunity to use bricks cast in molds by hand to our specification, we developed a shape and pattern for the brickwork as if woven across the building's elevations. Facing the public approach on Weavers Lane, the elevation inflects gently, giving scale and modulation to the façade. The deep texture of the brick bond is animated by light and shadow casting across the façade's facets as the sun shifts. At street level, the plan is cut away, widening the pavement approach. A colonnade of rusty Cor-ten steel ribs, subdivides dark blue-grey knapped, rough flintwork walls, and includes the new bronze, glazed museum entrance.

The zig-zag roof form has varied pitches and incorporates skylights, copper plant room grilles, and a camera obscura lens turret. It is covered in standing-seam copper sheet with copper valley gutters draining rainfall into copper hoppers and downpipes at the rear. This allowed us to present a slender roof edge to all the verges, capping the deeply textured brickwork. Window sills and entrance thresholds are cast gunmetal while internal floor grilles are pre-rusted cast iron, all chosen because of their substance, coloring and ageing characteristics as well as the pleasure of them being cast in molds, like the bricks and the precast black concrete staircase. Bronze balustrades and doors, their handles and the fumed oak wall cladding are all finely wrought and finished from solid material because these are elements with which visitors are in close contact and whose appearance will develop from being touched.

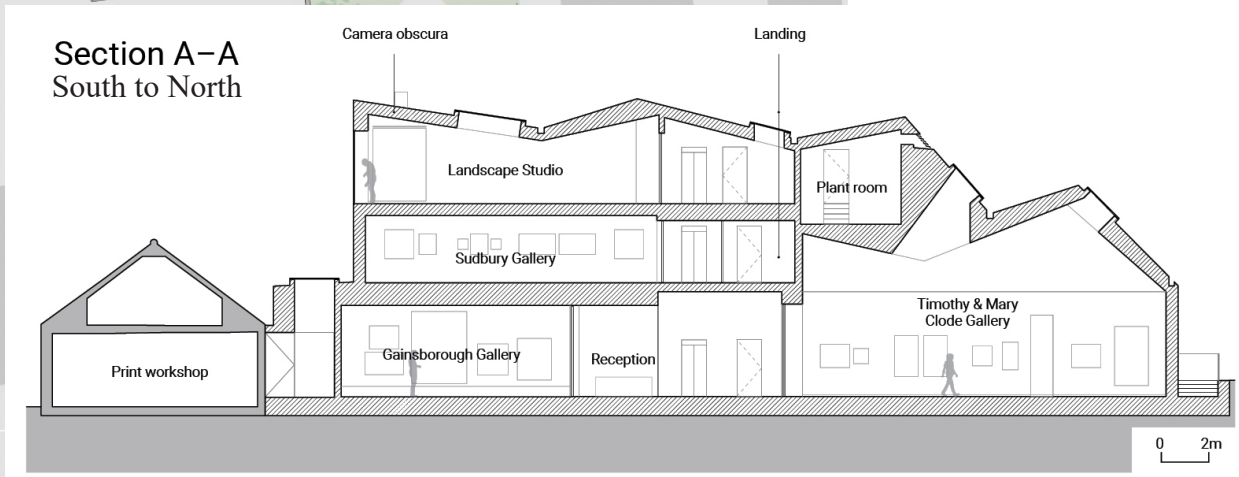
—Adam Zombory-Moldovan, director, ZMMA





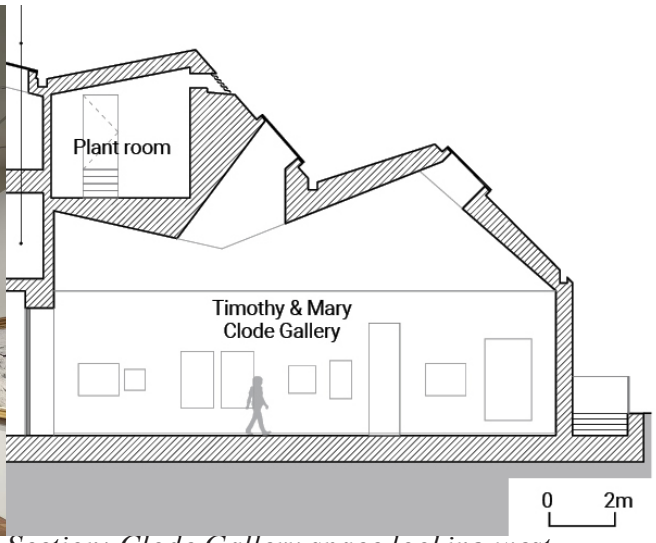


Plans and section of the new addition.



6 pts. 1. **Cite** three age old adages or rules-of-thumb for daylighting that are either followed or ignored in the design of the Timothy and Mary Clode gallery. Fully **explain and illustrate** why you believe that the apertures and surfaces are effective or ineffective in providing a visually comfortable room.

Photo: Clode Gallery space looking east.



Section: Clode Gallery space looking west.

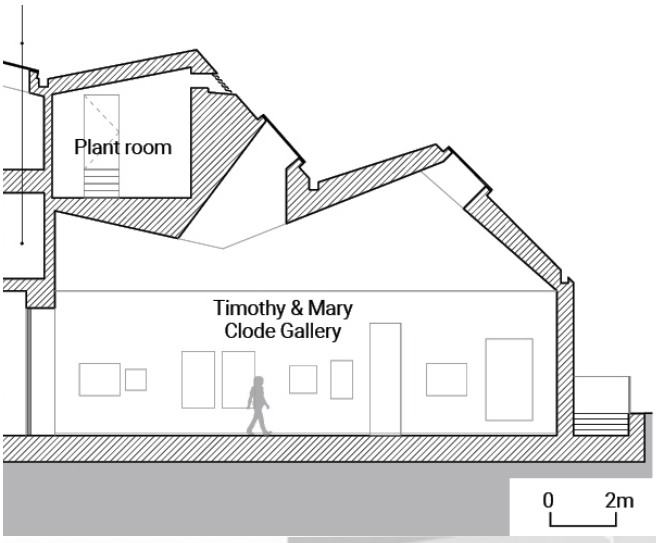
1

2

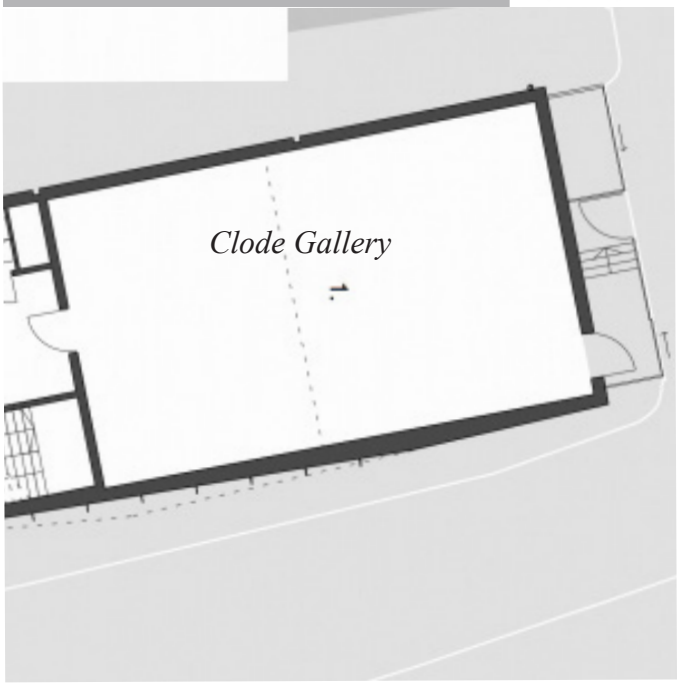
3

6 pts. 2. The Clode Gallery is daylighted by two toplighting fixtures as shown in section below and in the page 4 image. There are no sidelighting apertures. Use the GDDM methodology to illustrate how the daylight is distributed in the gallery in plan and section.

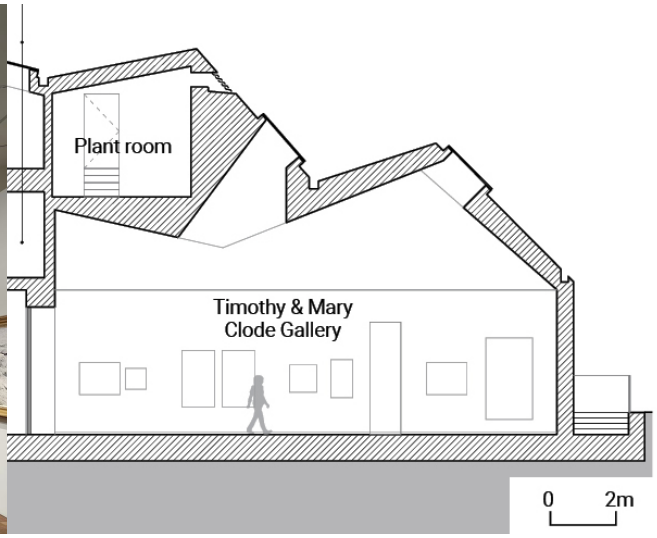
Sketch the daylight on the plan and section provided.



Critique this daylighting scheme. Use evidence from your sketches and the photograph on page 4.



6 pts. **3. Design and place** a clerestory aperture scheme for the east and/or west walls that would improve the daylighting in the Clode Gallery. **Explain your intent and show** its effect and placement in the room and **sketch** your design to illustrate how it works for lighting and for sun control.



2 pts. **4. Critique** the existing integration of the daylight and electric light systems. **Explain** how your proposal in question 3 would improve integration of the lighting systems.