

Arch 464
ECS
Spring 2020

Name _____

Quiz #1

Manchester Pre-United



All images: Architects Journal, 28 January 2020

North elevation of EBBA's Manchester Kidzrus Preschool remodel.

For this problem you are a daylighting analyst for a preschool addition in Manchester UK.. Your task is to analyze strengths and weaknesses of the existing daylighting strategies for the school's upper floor, which has a large teaching space as its main use. Adequate daylight and solar control are of essence.

Context. The school is located just north of central Manchester at $53^{\circ}30'$ 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!

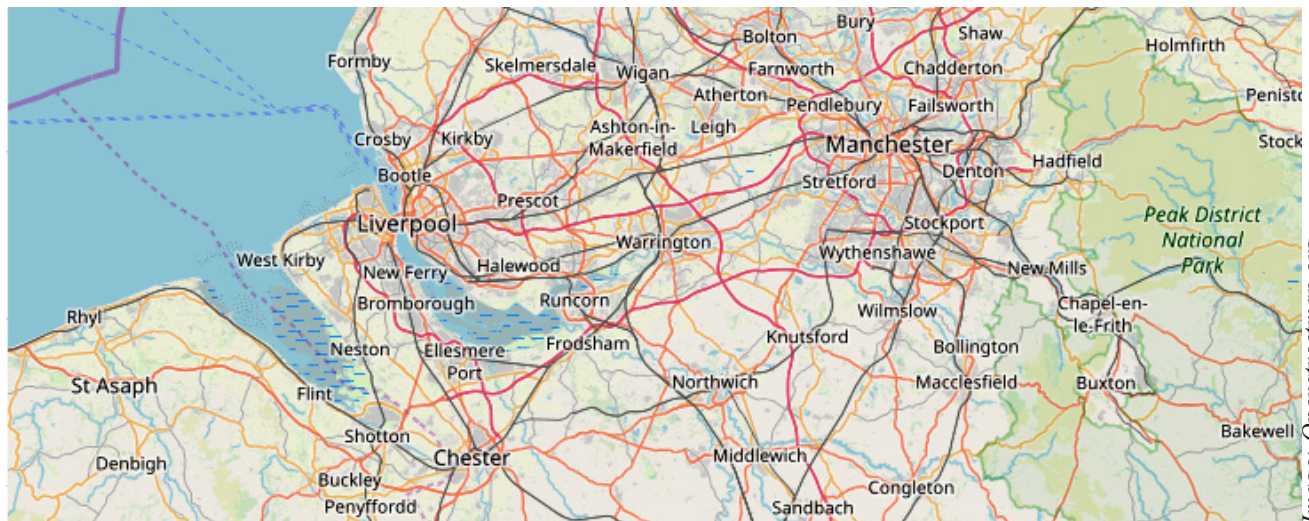


Image: Openstreetmap.org

Kidzrus Nursery: Manchester, UK

EBBA Architects has extended a modest 1870s building in Swinton to provide much-needed top story teaching space for a nursery. Photography by Lorenzo Zandri.

The steep pitched roofs of the extension create a tent-like form, clad in hand-stained tiles to reference the existing brick detailing. [*The form mimics corrugated metal.*]

Internally, the upper floor plan steps back from the perimeter of the existing building and contains a sequence of smaller rooms offering alternative teaching spaces to those below. Niches within the deep window reveals offer spaces for up to three or four children to climb into and play.

Architect's view

The Lodge—a former gatehouse to a hospital—was transformed into a nursery and has recently been extended through an ambitious proposal to double the size and provide much-needed teaching space for the growing numbers of children.

Dealing with the nursery's complicated ageing structure set the project's limitations and opportunities. Previous architectural interventions, constructed without much regard for the existing building's architectural qualities or integrity of form, involved a careful process of uncovering and restabilising the building. The result of this investigative process and challenging build has produced a playful design that ties the project to the character of steep pitched roofs around the site, while also trying to create a tent-like form that the children could relate to.

Low-tech sustainable strategies were employed, which are evident in the way the building is assembled; a celebration of ways in which simple materials can come together to make a richer effect. The architecture aims to express an understanding of modern buildings being made of layers, and the banding of the hand-stained exterior imitates the existing brick detailing.

The plan of the upper floor is defined by the perimeter of the building, stepping back in places to respect the prominence of the existing window bays. Internally the project offers an impressive set of spaces for early-years learners. Designed as a sequence of smaller rooms, the new teaching space offers opportunities for discovery and exploration. The ceilings rise with the pitch of the roof to create an airy and uplifting learning environment while niches within window reveals offer children spaces to climb into and play.

—Fran Williams, *Architects Journal*, 28 Jan 2020

Project data

Start on site—January 2019

Completion—July 2019

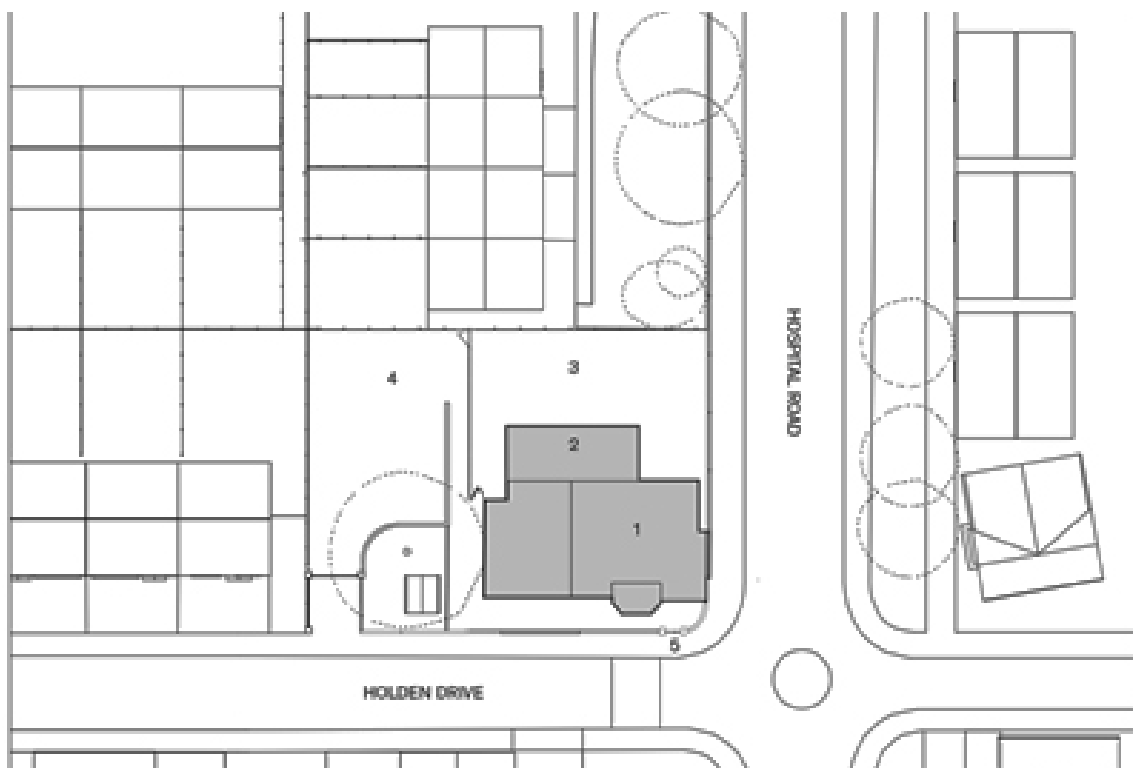
Gross internal floor area—300m²

Form of contract—Design and build

Construction cost—£185,000

Architect—EBBA Architects

Client—Kidzrus Nursery



Site Plan. South is up.

Key: 1. Pre-school, 2. Terrace, 3. Garden, 4. Carpark, 5. Main entrance



Upper floor plan. South is up.

Key: 1. Office, 2. Stairs, 3. Staff Room, 4. Bathroom, 5. Storage, 6. Teaching Space, 7. Window Niche, 8. Children's Bathroom, 9. Porch, 10. Terrace.

3 pts. 1. **Cite** three age old adages/rules-of-thumb that are either followed or ignored in the design of the teaching space. Fully **explain and illustrate** why you believe that the apertures are effective or ineffective in providing a visually comfortable room.

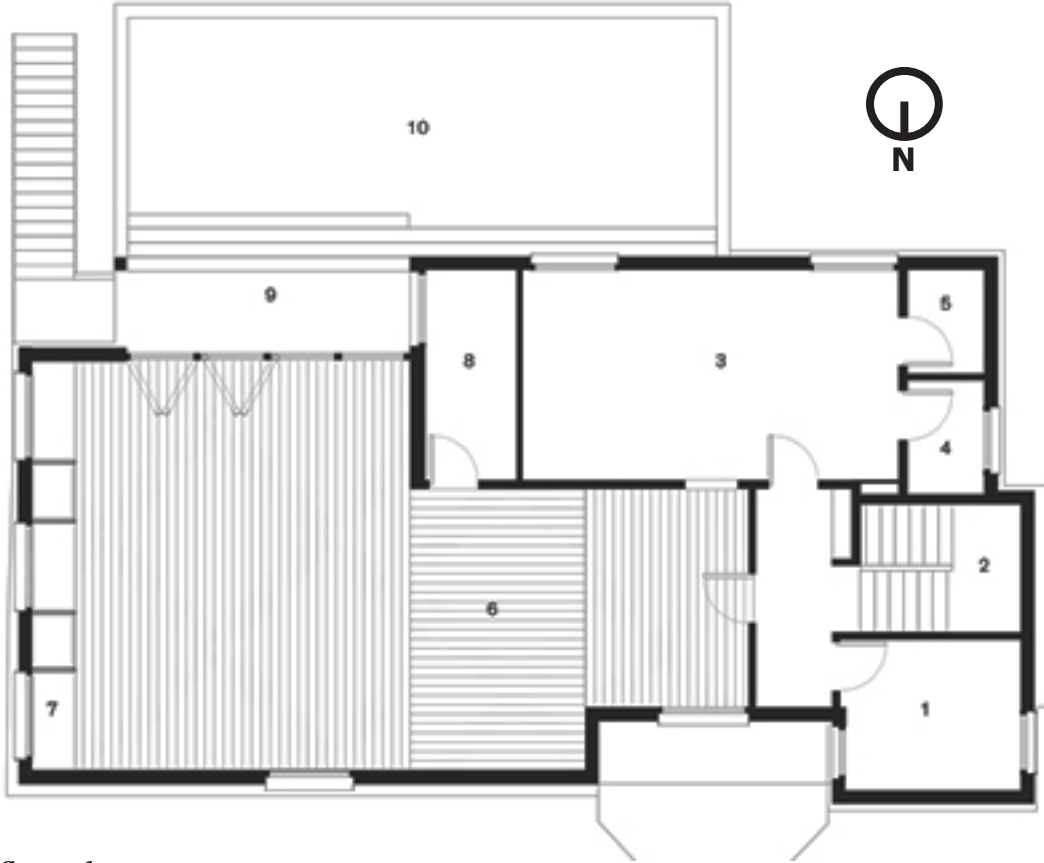


The teaching space has three windows with seating niches for the children on the east-facing wall.



The space has a fully openable and shaded [see p.6] nanawall opening to the south-facing deck and terrace. There are also two north-facing apertures.

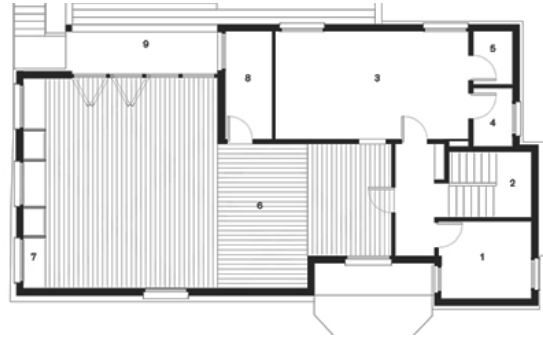
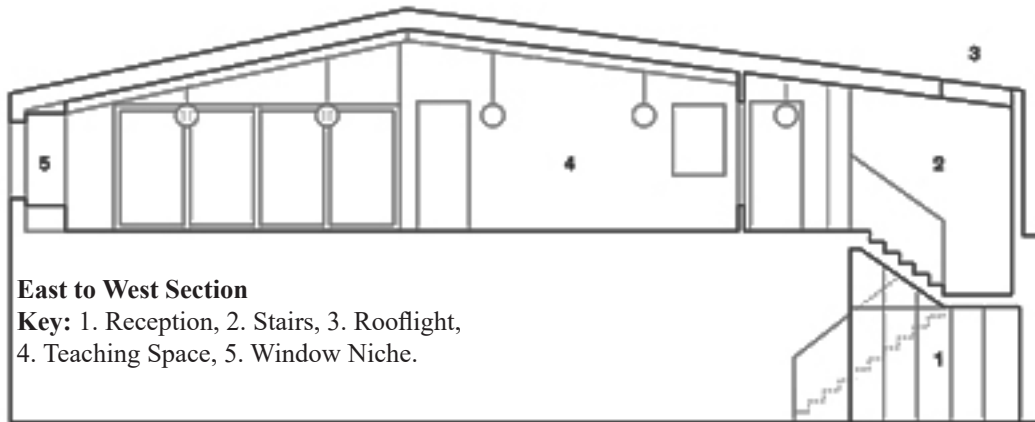
3 pts. Show how daylight is distributed in the building on a perfectly cloudy day. Note: There is a roof light over the stairs. See page 6.



Upper floor plan. South is up.

Key: 1. Office, 2. Stairs, 3. Staff Room, 4. Bathroom, 5. Storage, 6. Teaching Space, 7. Window Niche, 8. Children's Bathroom, 9. Porch, 10. Terrace.

3 pts. 3. Based on your plan analysis in question 2, **design and place** a toplighting fixture that would even out the lighting in the space. **Show** its effect and placement in plan and section.



1 pt. **Shading.** The horizontal shading device over the porch is the building's only external device. **Explain** its role in the daylighting scheme.

