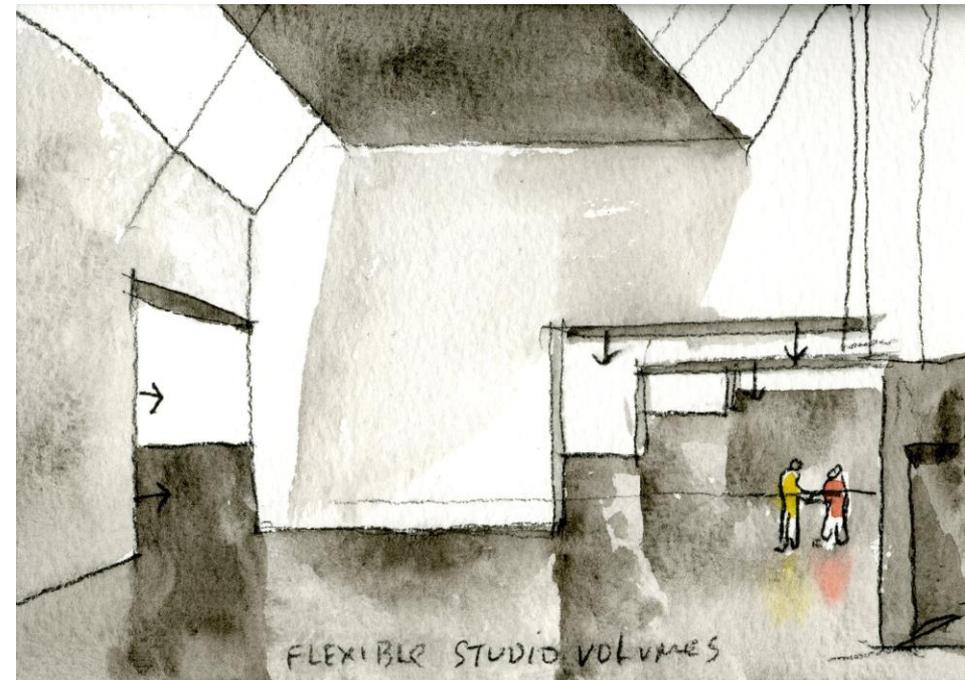


Glasgow School of Art

The project was won through an international competition for a new school of design. The work has been carried out in collaboration with Steven Holl Architects in New York. The key points explored are the spatial outcomes of new teaching spaces and the principles of designing in detail.



PROJECT DESCRIPTION

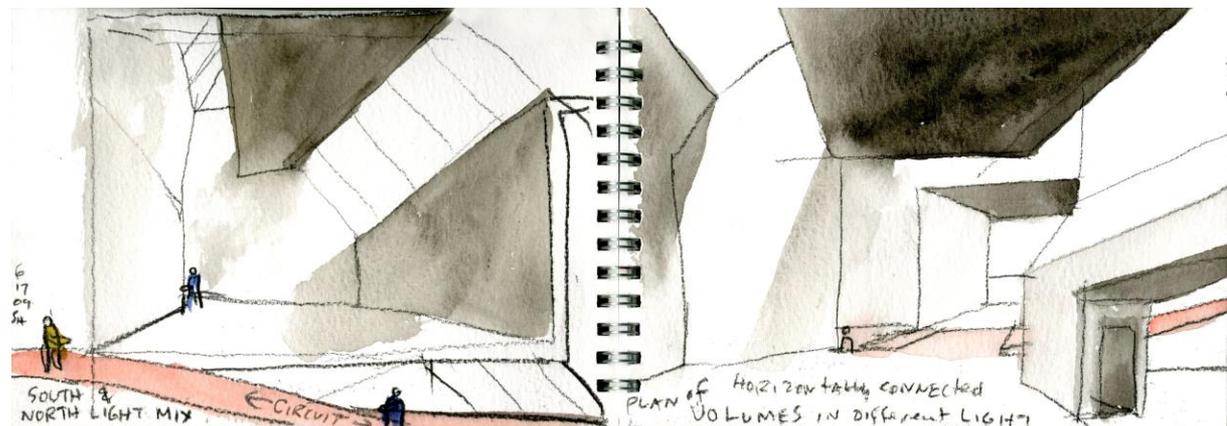
The new building stands across from Charles Rennie Mackintosh's 1909 Glasgow School of Art in complementary contrast, forging a symbiotic relation in which each structure heightens the integral qualities of the other. The new building significantly enhances the teaching, learning and research facilities available to GSA students and staff and the access the public will have to their work.

Centralized facilities for the GSA campus, including exhibition spaces, seminar spaces, digital media and the "Window on the Mackintosh" centre are located on the ground floor in a carefully considered balance that forges an identity as an academic building, for the school and students, but that also invites the public inside.

Title
Glasgow School of Art

Submission No.
03

Authors/Creators
Ian Alexander / Henry McKeown



Watercolour sketches by Steven Holl, of the studio spaces

PROJECT DESCRIPTION

The site opposite the Mackintosh Building called for a unique, inspiring and stimulating twenty-first century architecture with a great sensitivity to light, detail, and material. Inspired by Charles Rennie Mackintosh's inventive manipulation of the building section to introduce and deploy light in a tremendous variety of inspiring and successful ways, the new design complements its neighbour, but moves forward using a new language of light.

The design began with the Studio space—the core of teaching and making art. Well-proportioned studio and workshop volumes are arranged in plan and section with natural side and top light for inspiring work environments. They are adaptable with potential for individual studios to open into larger groups, and arranged with functionally adjacent support spaces in rhythm with the studio/workshop volumes. They are illuminated with north light, with shafts of warm south, east or west light.

Studios are generally positioned on the north facade provided with large inclined north facing glazing to maximize access to the desirable high quality diffuse north light throughout the academic year. Spaces that do not have a requirement for the same quality of natural light, are located on the South facade (opposite the Mackintosh building) where access to sunlight can be balanced with the occupants' needs and the thermal performance of the space through application of shading or informed shaping of openings.

The building provides much needed studios and centralized workshop facilities, the Center for Advanced Textiles, new digital media spaces, a lecture theatre and seminar rooms, exhibition space, a refectory for staff and students and a range of informal learning areas.

The interpretation centre for the Mackintosh Building, phase 4 of the Mackintosh Conservation and Access Project is also on the site. Located one level below, a 300-seat lecture theatre has direct access to the lobby as well as the centralized workshop and associated assembly spaces.



Construction view of driven void and 'circuit of connection'

PROJECT DESCRIPTION

Immediately above the ground floor are the school directorate and administrative offices (on the south) whilst studio space occupies the entire north side at this level and moving up through the building. The new GSA refectory is located on level 2 above the offices, bringing the entire school up and into the building on a daily basis.

The original competition brief detailed the aim of Professor Seona Reid, Director of the Glasgow School of Art, for “creative abrasion” between the students and faculty. In Steven Holl Architects and jmarchitects’s design, this translated to a “Circuit of Connection,” which encourages the ‘creative abrasion’ across and between departments that is central to the workings of the school. The open circuit of stepped ramps links all major spaces - lobby, exhibition space, project spaces, lecture theater, seminar rooms, studios, workshops and green terraces for informal gatherings and exhibitions.

Along the South elevation, at the same height as the Mackintosh main studios, there is a landscape loggia in the form of a Machair that gives the school an exterior social core open to the city. Natural vegetation with some stonework routes water into a small recycling water pond which will also reflect dappled sunlight onto the ceiling inside.

A homage to Mackintosh in space, “driven voids of light” allow for the integration of structure, spatial modulation and light. The driven void light shafts penetrate the building’s core, and simultaneously deliver natural light and vertical air circulation through the depth of the building, providing direct connectivity with the outside world through the changing intensity and color of the sky.



Sectional study model

PROJECT DESCRIPTION

The structure of the new Glasgow School of Art is the complimentary contrast of the original 1909 building. The exterior of the new building is coated in a thin skin of matte glass referencing Mackintosh's stone skin on the 1909 building. The material, used by Steven Holl Architects on the Vanke Center in Shenzhen, China, softens the light on the Mackintosh building ensuring the studios continue to benefit from the quality of light as envisaged by the designer. Inside the building, wood formwork has given the concrete a textured finish, while steel formwork was used for the driven voids of light, to provide smooth surfaces that reflect light down into the section of the building.

The new building, rated BREEAM Excellent, integrates several innovative sustainable design features, such as storm water retention, collection and reuse, and green roofs.

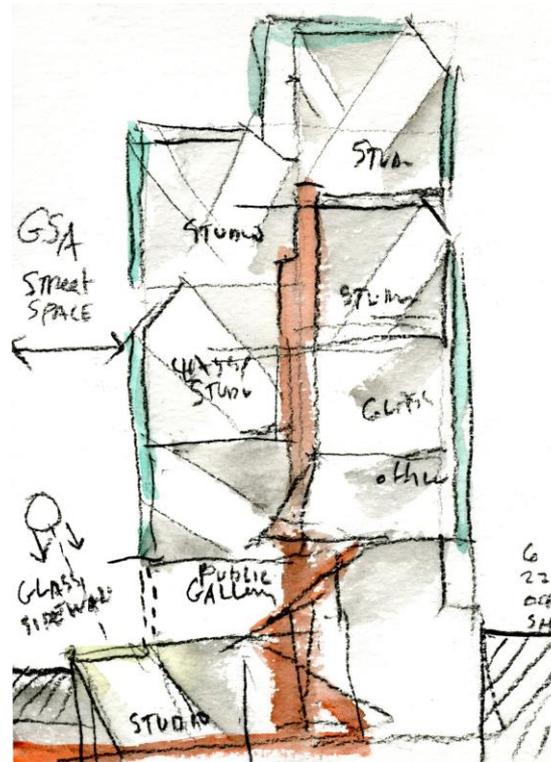
The driven voids of light provide natural ventilation throughout the building, eliminating the need for air conditioning. A new biomass plant serves the new Glasgow School of Art, the original Mackintosh building and the Bourdon Building.



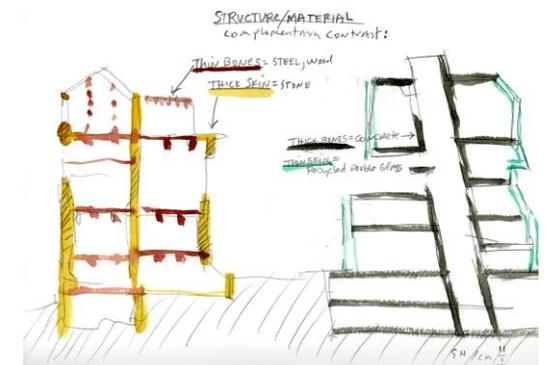
Construction view looking down a driven void

RESEARCH QUESTIONS

1. What are the spatial outcomes for the new art school building that creates a new teaching environment?
2. Design in Detail. How was the design intention of the new art school translated into the architecture of the fabric and the buildings materiality?



Watercolour sketches by Steven Holl



AIMS AND OBJECTIVES

What are the spatial outcomes for the new art school building that creates a new teaching environment?

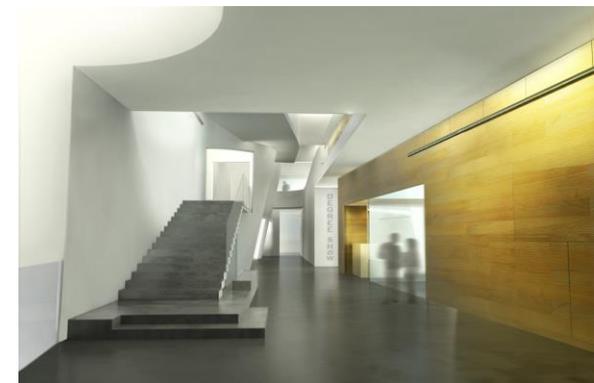
The new art school building is in essence a section of studio volumes that are linked vertically and horizontally .

They are set out on a 15m grid which echoes the dimensions of the studios in the original art school building by Charles Rennie Mackintosh. The plans are enfilade in nature with views up and down and along depending on their position in the section.

At certain key moments ‘driven voids of light’ cast in concrete penetrate the section of the building in a diagonal geometry that brings light, integral structure and ventilation to the building. At certain points through carved voids a multitude of views are opened up visually connecting the circulation ramps and studios.

The section is both simple and complex .As the sun rotates around the building light and shadow fill the spaces creating different moods and atmospheres in different times of the day.

The analysis of these spaces the observation of these changes and their relationship back to the architectural principles that frame the project are worthy of investigation.



*Internal views; left - refectory view
above – circuit of connection*

AIMS AND OBJECTIVES

Design in Detail. How was the design intention of the new art school translated into the architecture of the fabric and the buildings materiality?

Design in detail is a principle that we use when teaching our students and we thought it highly appropriate that this became the methodology for taking the design of the school into a set of working drawings .

This process involved continuous dialogue with SHA and a sharing of knowledge from previous projects.

The design in detail process instigated a complete review of detailing in previous SHA projects .We examined wall s ,windows ,doors , floors and ceilings .We noted, for example, how corners met, how handrails were crafted and how doors sat in walls. The detailing however is entirely bespoke for the project .

Part of the outcome of the design in detail process was the creation of full size mock-ups for the driven voids of light and the external bespoke glass rainscreen and concrete walls. In addition internal walls of various types were built to test the gauge of the internal timber shuttering.

At a much more detailed level custom designed light fittings were built and tested as prototypes within the built fabric.



Construction view of driven void

CONTEXT

Glasgow School of Art has its historic location in Garnethill in the heart of Glasgow. The site is urban. It is bounded by Renfrew Street, Dalhousie Street, Scott Street and Renfrew lane.

The site, situated on a drumlin, is prominent in places but embedded within the urban grid. It is visible on the skyline from the M8 yet from certain aspects on neighbouring Sauchiehall Street it can be quite discreet.

One of the challenges of the site is building a new building facing Charles Rennie Mackintosh's existing art school building (grade A listed), completed in 1909.

The design of the proposals was always measured against detailed drawings and sections through the location.

Indeed as a research piece every single window type in the existing Art School was drawn as an analytical reference for the new design. In terms of planning considered views of the new structure were essential to giving an idea of how the proposals sat in the context.



*Views in context; above – from Sauchiehall St
right – from Dalhousie St*

RESEARCH METHODS

In this instance jmarchitects worked hand in hand with Steven Holl Architects during the competition ,design development and design in detail phases of the project. He referred to us as his ‘critical partners’.

An analysis of summer and winter sun paths were undertaken to understand shadow and light penetration in the various seasons into the new structure.

- We were involved in the design of the written challenge as a book.
- We developed an approach –Macro to Micro analysing both the city and the building
- We undertook topographical surveys , building surveys and ground condition surveys.
- We undertook the consultation process on behalf of the team.
- We had meetings in New York and Glasgow to review the design and progress of the detailing

- We were involved in the sampling and approval process for all the materials
- We researched the making and detailing of the glass façade
- We researched the making and detailing of various bespoke fittings for the new building .
- We researched the finish to the concrete and all the various finishes through the building.
- We took part in Regular Skype conversations as the design and materiality progressed.



Material samples, design images and books within our studio

DISSEMINATION

Publications

The Architects Journal

22 03 11 'Holls Glasgow School of Art Gets Go Ahead

10 11 10 'Facing up to Mackintosh', David Porter

17 09 10 'Steven Holl unveils Glasgow school of Art .

The Building Design

17 09 10 'Steven Holls Glasgow School of Art Designs Revealed', Andrea Klettner.

24 07 10 'Holl unveils art school'

Architectural Record

The Glasgow Herald

23 05 09 "starchitects ' Fade out of contention for top commission' Phil Miller

17 09 10 'Design for art school building unveiled' Phil Miller

16 01 10 ' Glasgow school of Art architect promises 'light' and 'green' design

10 07 12 'Work Well Under Way For New Art School', Phil Miller

18 09 12 'Art school Sees The Light', Phil Miller

The Observer

27 02 11 'Glass Warfare Comes To Glasgow', Rowan Moore

March April 2009 'Back to School' Fly Be inflight magazine

'Uneasy Balance ' edited by Chris Platt, GSA publications June 2013



View of studio spaces

ESTEEM INDICATORS

The project was won in an international competition

The building has been widely reported in the press at a national and international level.

It has been covered by the BBC on the news.

Louise Lockwood is currently undertaking the making of a documentary for the BBC

El Croquis are currently producing another volume on the work of Steven Holl and the Art School is to be included.



View in context; looking up Renfrew Street

PHOTOGRAPHIC MATRIX

