ARCHITECTURE

PORTFOLIO

BENJAMIN GATH

2024

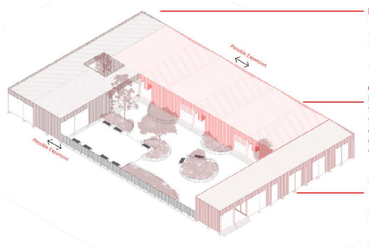
01
CAMPUS Senegal

Status: Completed

Project: Kaira Loora - Senegal Primary School

Location: Southern Senegal

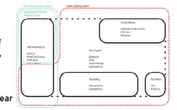
Key Details:
- » Community-oriented, Adaptable and Modular Program for Universal Schools.
- » Brief asked for an easy to build primary school for use nationally amongst Senegal.
- » This modular system can be re-oriented to fit any site.
- » It uses traditional building techniques to form a modern structure.
- » It is designed to be constructed for less than $70,000



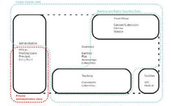
Facilities Module
Provides facilities with options for expansion, or new openings to provide alternate access. Large hall to host community events, with a small kitchen for preparation of meals. Can be used in humanitarian crisis as triage space, and community assistance hub.

Classroom Module
Provides modular classrooms, which can be added in a linear fashion as necessary. Classes can be run during and after school hours,to act as a community learning and education centre. Rooms are large enough to host community events. Can be used in humanitarian crisis to host doctoral wards, and disaster response groups.

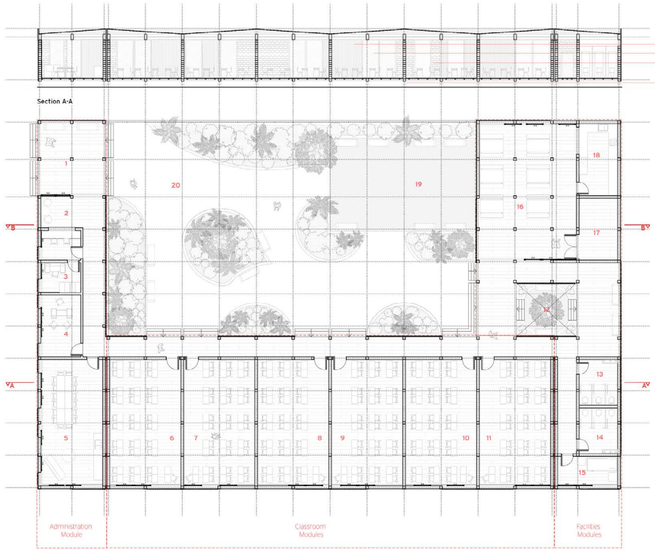
Administration Module
Hosting the schools meeting spaces and data storage, module is designed with community aid at its heart with a suspended clay-covered, wire mesh art piece hanging from the ceiling, created by the locals. Can be used in humanitarian crisis to support admin of materials and supplies, and host volunteer meetings.



Access to Space (School Hours)



Access to Space (Out of School Hours)



Section A-A

Ground Floor Plan

1:200 0 200 400 1000 2000

Slatted external openings to prevent rain ingress.
Slide-able screens to prevent rain ingress.
Exposure of raw materials for simpler and faster construction.
Systematic approach to design to be produced in bulk. Allows option to produce off-site or on-site, dependent on level of technicality.

Features:
Additive Modular System, to increase classroom numbers.
Simple timber frame construction.
Community design, with overhead clay-mounted wire art piece in entry space.
Air-Lock design with safety zones for children.
Access to green space and shaded outdoor zones.
Options to change access arrangements including the fitting of ramps.
Raised from floor level to ensure water damage is minimised.
Designed to accommodate both children and adult education services.
Designed to be useful in humanitarian crisis fitting the systematic approach to aid work.
Uses pre-existing methods of teaching design to ensure equality through education sector.

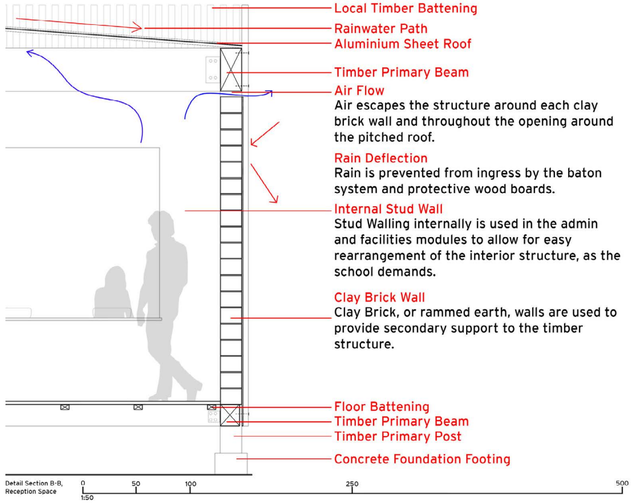
Key:

Administration Module:
1. Main Entrance
2. Reception/Lobby Space
3. Back-Office/Records
4. Principals Office/Medium Meeting Space
5. Large Meeting Space/Staffroom

Classroom Modules:
6 - 11. Classrooms

Facilities Modules:
12. Laboratory/Recreational Plant Space
13. W/C
14. W/C
15. Medical Room
16. Multi-use laboratory Space/Canteen
17. Storage
18. Kitchen

External Space:
19. Multi-Use Play & Physical Exercise Space/Laboratory
20. Courtyard



Local Timber Battening

Rainwater Path

Aluminium Sheet Roof

Timber Primary Beam

Air Flow

Air escapes the structure around each clay brick wall and throughout the opening around the pitched roof.

Rain Deflection

Rain is prevented from ingress by the baton system and protective wood boards.

Internal Stud Wall

Stud Walling internally is used in the admin and facilities modules to allow for easy rearrangement of the interior structure, as the school demands.

Clay Brick Wall

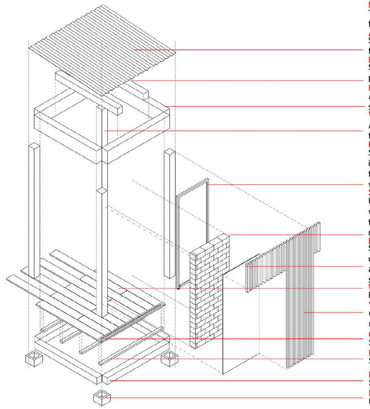
Clay Brick, or rammed earth, walls are used to provide secondary support to the timber structure.

Floor Battening

Timber Primary Beam

Timber Primary Post

Concrete Foundation Footing



Modular Construction System (Sub-Modules)
These sub-modules are the structural components forming the three main modules, Admin, Facilities and Classroom.

Aluminium Sheet Roof
Secured to timber vertical beams, slanted, raising no higher than the surrounding vertical batons.

Horizontal Secondary Battening
Secured using simple screws and nails, to Primary Structure providing further horizontal support.

Horizontal Primary Beams
Acting as the main Timber Battening, secured using simple screws and nails to primary vertical beams.

Vertical Primary Posts
Acting as the main Timber Posts, sits within concrete footings, and anchored using L-Brackets and Bolts.

Fabric Mesh Screen
Sliding Mesh Screens prevent water, dust and insect ingress into the structure. These can be decorated with artworks by the community, and can either be fitted to a rail system or wheels.

Secondary Vertical Supports, Clay Brick
Using locally sourced clay, this brickwork can be substituted with rammed earth, dependent on the locality, replaced with timber stud work internally in the admin and facilities modules.

Protective Wooden Sheet Board
Secured using nails, this boarding is optional and produces a consistent colour scheme across the facade. Leaving this off adds a depth and contrast, providing a uniqueness to the school.

White Wood Beams Floorboards
Replaceable white wood floorboards are secured using nails.

Vertical Battening System
60x60mm Batons fixed to primary structure, 60mm apart reduces water ingress.

Optional Aluminium Rail system
Secured to floor battening can be replaced with wheels.

Floor Battening
Secured to primary structure with nails.

Primary Horizontal Supports
Secured to primary vertical posts using screws and nails.

Pre-Cast Concrete Foundation Footings
Used to level the structure across rough terrain.

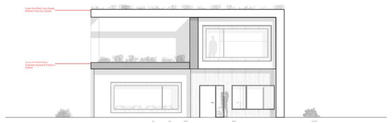
02
EC(h)OME

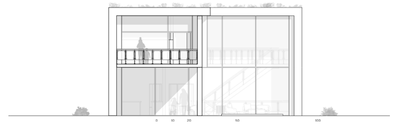
Status: Completed

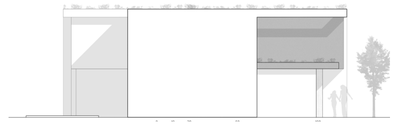
Project: House of the Future - United Arab Emirates, BEEBREEDERS Competitions

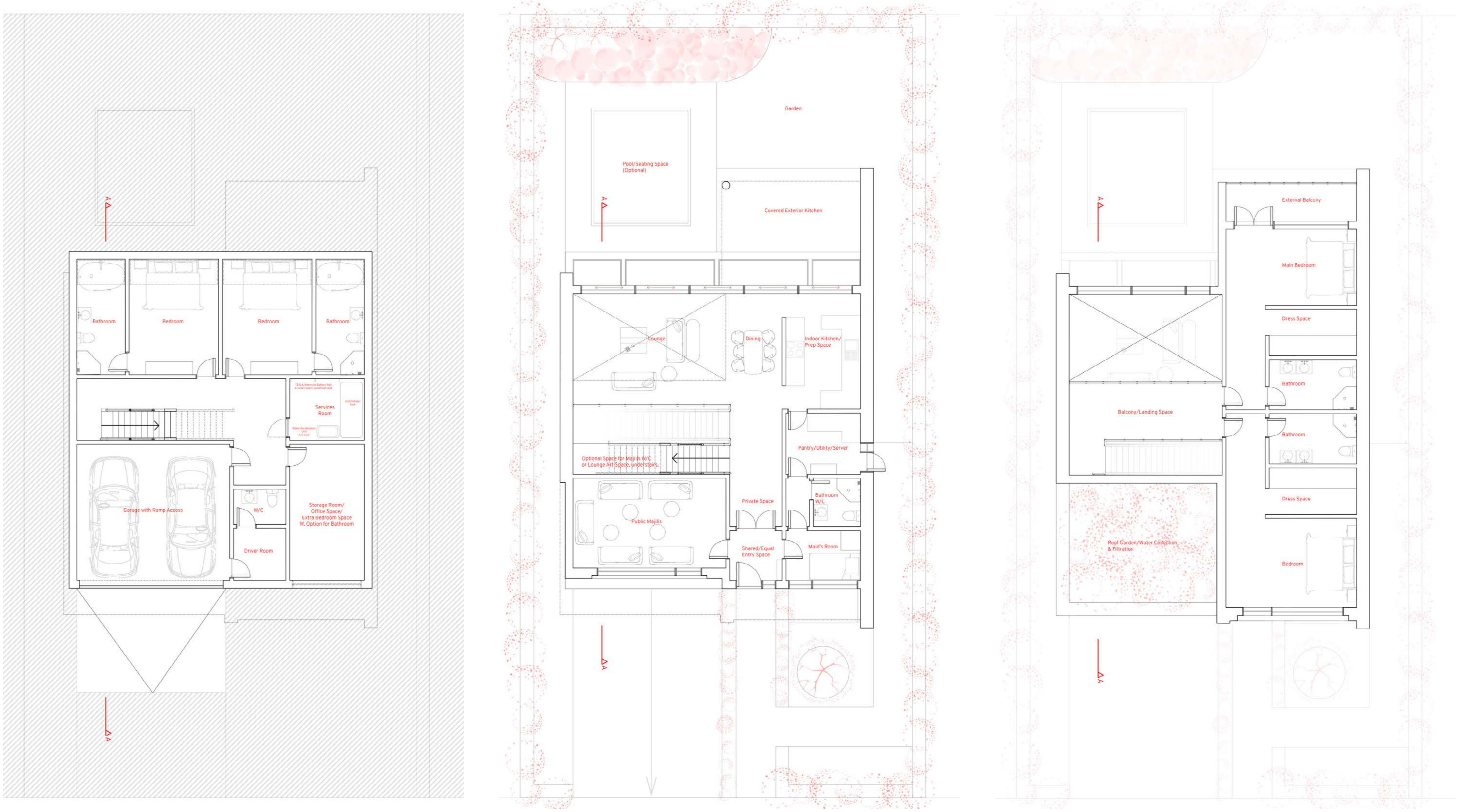
Location: United Arab Emirates

Key Details:
» Proposing a design for a new addition to the UAE housing stock.
» I introduced the idea of a modular system that could expand with the growing family.
» I challenged cultural values in a respectful way, giving a single entry point for household staff, families, and homeowners.








Bathroom
Bedroom
Bedroom
Bathroom
Services Room
Garage with Ramp Access
W/C
Storage Room/ Office Space/ Extra Bedroom Space W. Option for Bathroom
Driver Room
Garden
Pool/Seating Space (Optional)
Covered Exterior Kitchen
Lounge
Dining
Indoor Kitchen/ Prep Space
Optional Space for Majlis W/C or Lounge Art Space, understairs.
Pantry/Utility/Server
Private Space
Bathroom W/C
Public Majilis
Shared/Equal Entry Space
Maid's Room
External Balcony
Main Bedroom
Dress Space
Bathroom
Balcony/Landing Space
Bathroom
Dress Space
Roof Garden/Water Collection & Filtration
Bedroom

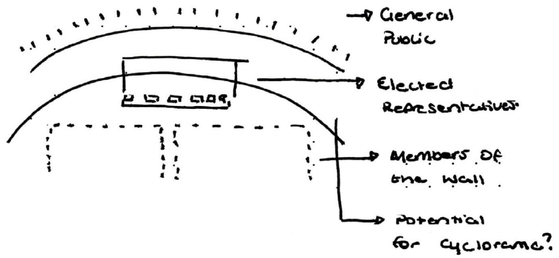
03
Wall Executive Building

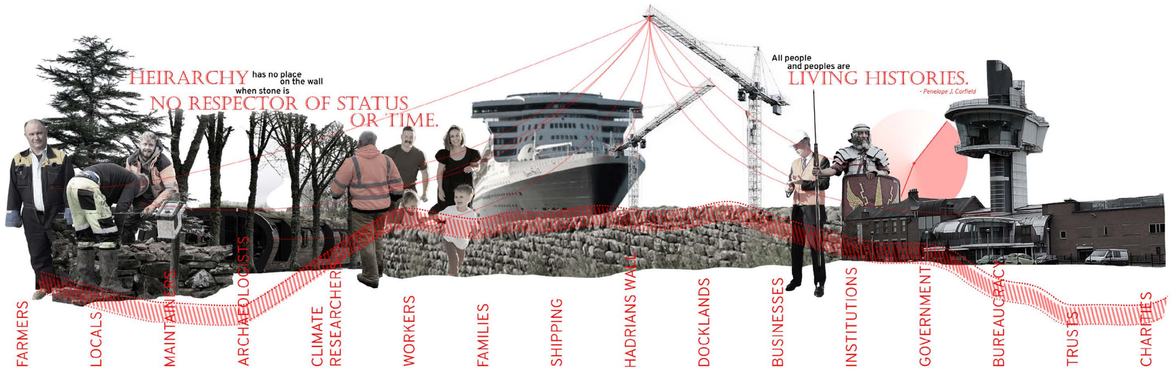
Status: Completed

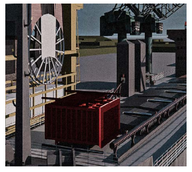
Project: 3001 - Architectural Design - Wallbeing

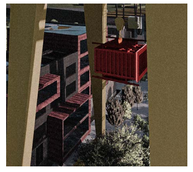
Location: Segedunum Living Histories Complex, Wallsend, Newcastle Upon Tyne

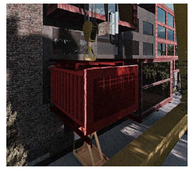
Key Details:
» Set within a wider masterplan, Segedunum Living Histories Complex, providing a space of Wellbeing which counters the historical context of Hadrian's Wall.
» A democratic building stylised by the likes of Oscar Neimeyer and Norman Foster.

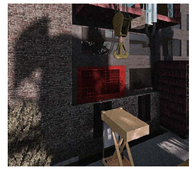


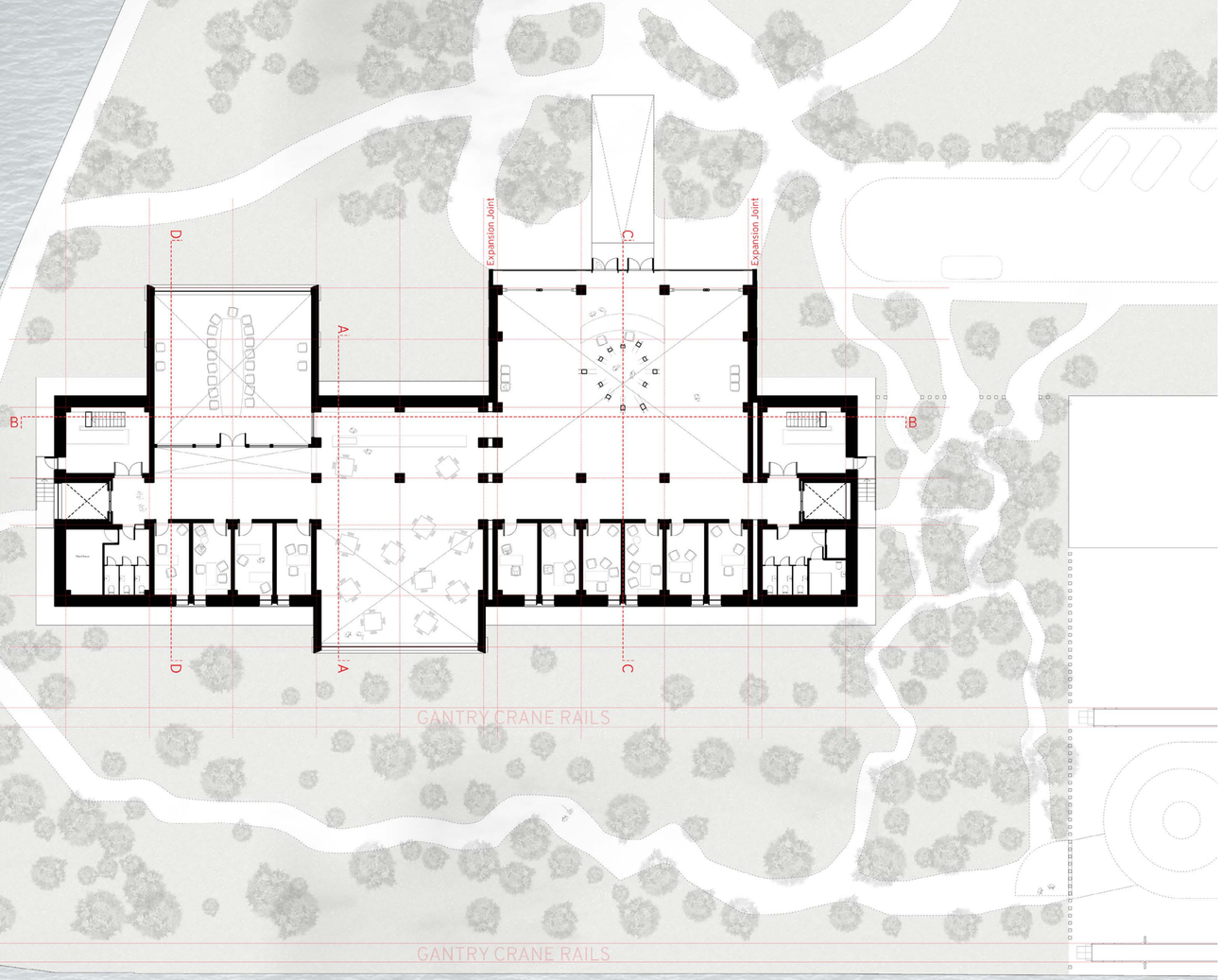

HEIRARCHY has no place on the wall when stone is
NO RESPECTOR OF STATUS OR TIME.
All people and peoples are
LIVING HISTORIES.
- Penelope J. Corfield
FARMERS
LOCALS
MAINTAINERS
ARCHAEOLOGISTS
CLIMATE RESEARCHERS
WORKERS
FAMILIES
SHIPPING
HADRIANS WALL
DOCKLANDS
BUSINESSES
INSTITUTIONS
GOVERNMENT
BUREAUCRACY
TRUSTS
CHARITIES











GROUND FLOOR - WEB | 1:100 AT A0

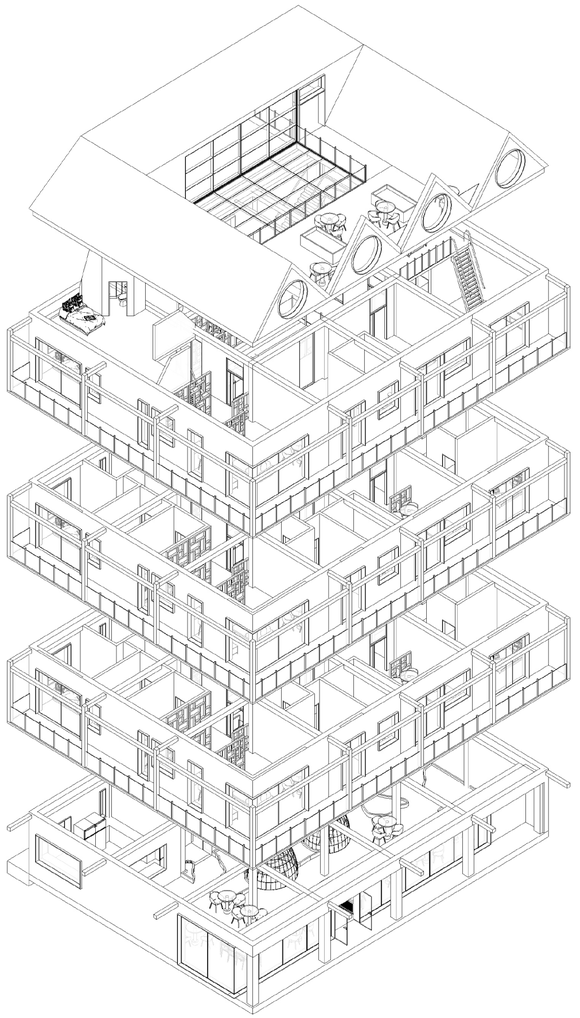
04
The Shield, Byker

Status: Completed

Project: 2001 Design, 1 - Together co-housing, community and the city

Location: Shields Road, Byker

Key Details:
» 4 storey retrofit of an existing structure on Shields Road.
» Developing a not-for-profit (GF) and a Co-housing scheme for 10 families to inhabit.
» Incorporates itself into the existing street with a town-house aesthetic, whilst inviting people into the not-for-profit, community facility below.
» Distinguishes private and public zones through a contrast in industrial, and typically home-like materials.



05
49 Bell St.

Status: Completed

Project: 2001 Design, 3 - Section of Society

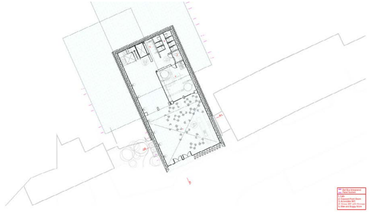
Location: 49 Bell Street, North Shields, Tyne and Wear.

Key Details:

» Civic Centres are the hearts of community politics, but are often disregarded as places of community engagement.

» This project, working on a steep incline, and stylised as a Norman Foster-esque warehouse, incorporates a wedding and debate space, cafe space, classrooms, library spaces, offices, business spaces and community spaces.

» The space is designed to only emit light out the front and back of the structure, to protect green spaces around it, housing common pipistrelle bats, and preserving their habitat.

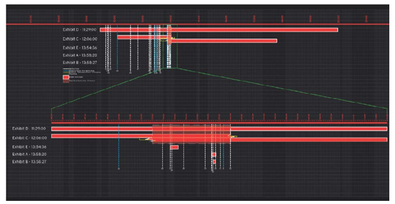


06
AIM - Dissertation

Status: Completed

Project: 3060 - Dissertation Studies

Key Details:
A deep dive into the work of Forensic Architecture, the practise and the practice. This dissertation establishes the phrase Architectural Investigation Matrix (AIM), a term I use to summarise the set of conditions within a criminal case, which allows Forensic Architecture to exist. Introducing Architectural Theory into the world of Forensic Architecture, I re-frame the definition of what a Forensic Architect is – shifting the current definition based upon existing titles and the term 'Forensis' – into a legitimate, Architectural Theory based, practise of Architecture. I examine Forensic Architecture and its techniques in the case of 'The Killing of Mark Duggan', before supporting the dissertation and my arguments with creative practise, by applying these techniques onto the French Pension Protests on the 1st May 2023.



Introduction

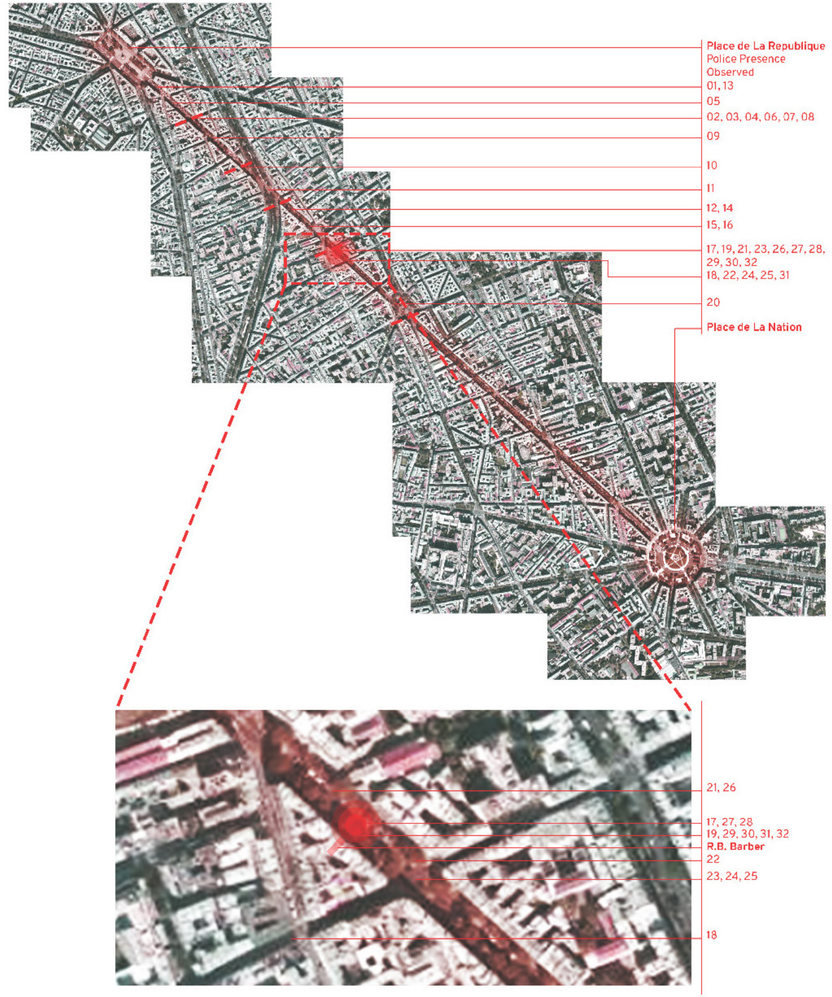
'The set of conditions that provides a system in which something grows or develops', sets precedent for the term Architectural Investigation Matrix, through Cambridges' definition of the latter 'Matrix'. AIM recognises the rise in Urban Warfare, in tandem with the accessibility of integrated technologies in society.[1] 'As globe spanning, geostrategic concerns blur into very local, urban spaces, all of a sudden it seems normal for Western cities to face a palpable militarization', which is ever mounted and recorded by the 'paths, pipes, wires and other channels that spatially concentrate inflows and outflows of people, [...] energy [and] information'.[2,3] This data is 'inextricably entangled in the networks of [...] air, water, waste disposal, energy, transportation and Internet Service Providers'.[4] Evermore, the integration between, man, technology and city, establishes the necessary conditions for gathering Architectural Evidence from Open-Source Networks — tapping into publicly available information — and conducting Architectural Investigation within the matrix of connected cities, visualising and spatialising evidence.

AIM is a term that summarises the overarching social conditions, Open-Source platforms, historical contexts, and Architectural Methodologies which integrate to form the practice of Forensic Architecture (FA). FA is an interdisciplinary research organisation based at Goldsmiths College, University of London. It is composed of 'architects, filmmakers, artists, scientists, and lawyers', among other experts.[5] Though their work is not entirely restricted to the legal domain, the organisation specialises in the spatial analysis of urban events, concerning Human Rights cases using Open-Source Intelligence (OSINT).

Through this dissertation, I will first explore the literature which contributes to Architecture being used as Evidence, within AIM, highlighting the historical context of FA, and defining its manifesto in wider theory. I will contextualise forensic interrogation of Urban Spaces, evaluating Gordon Cullen's 'Serial Vision', before moving to define OSINT and its place in space. This is a field largely untouched by researchers, as FA is established in the realm of Forensics but doesn't have a succinct and clear link to Architecture, other than its' practise in the recreation and analysis of Architectural Evidence.

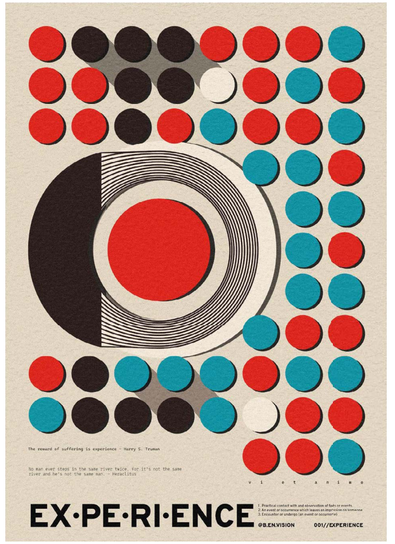
Next, I will explore the existing framework for FA — as an organisation — and consider the case study of 'The Killing of Mark Duggan'. Using this context, I will proceed to explore FA's boundaries, through an interrogation of Spatial Surveillance, pressing on the dangers and demands of a Forensic Investigation through Architecture. Applying the research of AIM to a comprehensive analysis of the French Pension Reform Protests of 1st May 2023, I will examine how Architectural Theory informs an FA investigation. Through this I will focus specifically on a piece of evidence which demonstrates two Police Officers becoming engulfed in flames, resulting from the revolt of 'Black Bloc Anarchists'. The investigation will deploy techniques developed by Forensic Architecture, to understand the relationship between Architectural evidence, the conviction and exposure of violence and human rights violations in the Urban Realm and Architectural Theory (AIM). I will use resources accessible to the public, like Google Earth, Sketchup, Twitter, Facebook, YouTube, and Adobe, to research, investigate, and present findings through an interdisciplinary lens. This will allow me to form a personal interpretation of Architectural Evidence, in the context of AIM, determining a use case for Forensic Architecture, and the application of Architecture in Legal Cases.

Through this creative practice, I explore what the practise of Forensic Architecture is, from its grassroots theory to its application in real, contemporary situations — answering the question of how we interpret Forensic Architecture through Architectural Theory, rather than its manifesto's original, criminological approach to the term 'Forensis'. I will take the contextual theories, processes, resources and presentation methods, and address and summarise them under the umbrella term of Architectural Investigation Matrix. Considering evidence using legal frameworks, and architectural analysis, I will explore its application in the built environment, legal cases, and then FA, following questions of ethics, urban theory, and criminal law. The outcome of this dissertation will give chance to apply the techniques of FA to gain a personal understanding of its use-case, but also, to stand as a documentation of the events leading up to the escalation of conflict along Boulevard Voltaire, Paris, during the French Pension Protests.



07
Extra-Curricular

Key Details:
- » Semi-Professional Photography
- » Graphic Communications, Brand Identity Development, Crisis Management
- » Chair of the Newcastle University Degree Show 2024
- » FOLD Magazine Journalist
- » NUAS Member & Contributor


EX·PE·RI·ENCE
@B.EN.VISION
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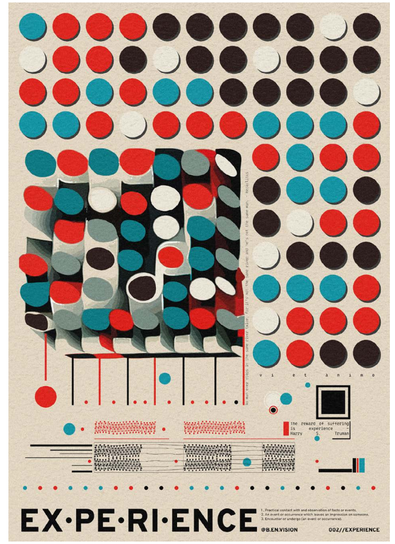
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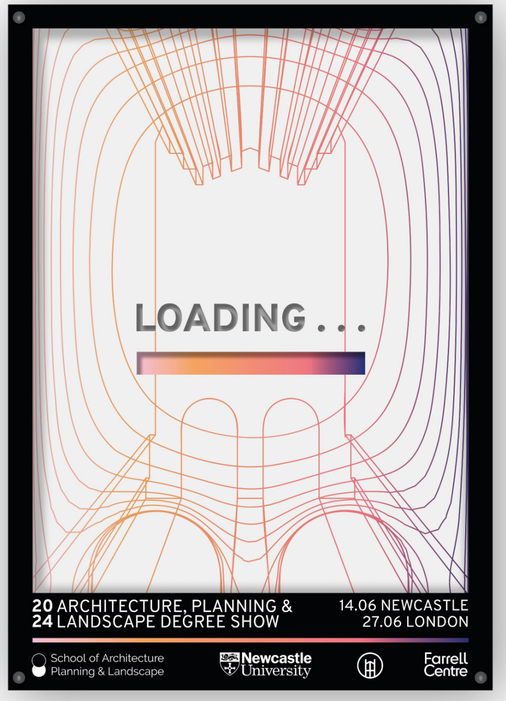
Soli
Soli

Ionic



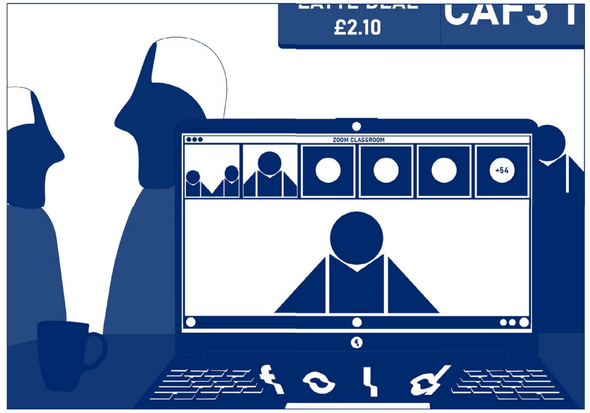
20 ARCHITECTURE, PLANNING & 24 LANDSCAPE DEGREE SHOW

14.06 NEWCASTLE
27.06 LONDON

School of Architecture Planning & Landscape

Newcastle University

Farrell Centre



GREEN CITIES - LITERALLY?

1

BY BENJAMIN GATH

When considering renewable energy, solar panels are often the first to mind. Yet, with their environmentally-damaging silicon-semiconductor cores and excess space they require, they may not be quite the saviours we expect. Bio-technological researchers around the world, may however, have found the solution: Biological (algae-powered) solar cells.

In tandem with research teams from Cambridge University, companies like SolarLeaf and Verde, Adan Ramirez Sanchez, and his organisation Greenfluidics – based in Mexico – have developed a triangular-shaped biodegradable panel that generates 328KWh/m2 of electricity and mitigates 200kg of CO2 annually. The panel also provides thermal protection to buildings, maintaining a comfortable temperature inside, saving another 90KWh/m2 of electricity. These cells save and produce enough energy to recharge your iPhone, empty to full, every day for 209 years. Regarding carbon offset, individual cells can cycle the equivalent of 9.5 trees annually.

GREENFLUIDICS: BIO-PANELS BEING USED SIMILARLY TO SOLAR PANELS

I

In addition to the cells being beneficial to the environment, they're also aesthetically viable for the construction environment; the clearness of the cells allows for incorporation into windows, roofs, facades, and furnishings, providing a wide variety of applications that don't compromise design.

While the cells are currently in a testing phase they are expected to be in use by early adopters during the latter half of 2022 – exciting news for the prospect of renewables.

II

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w : www.benjamingath.com

PORTFOLIO | **BENJAMIN GATH**