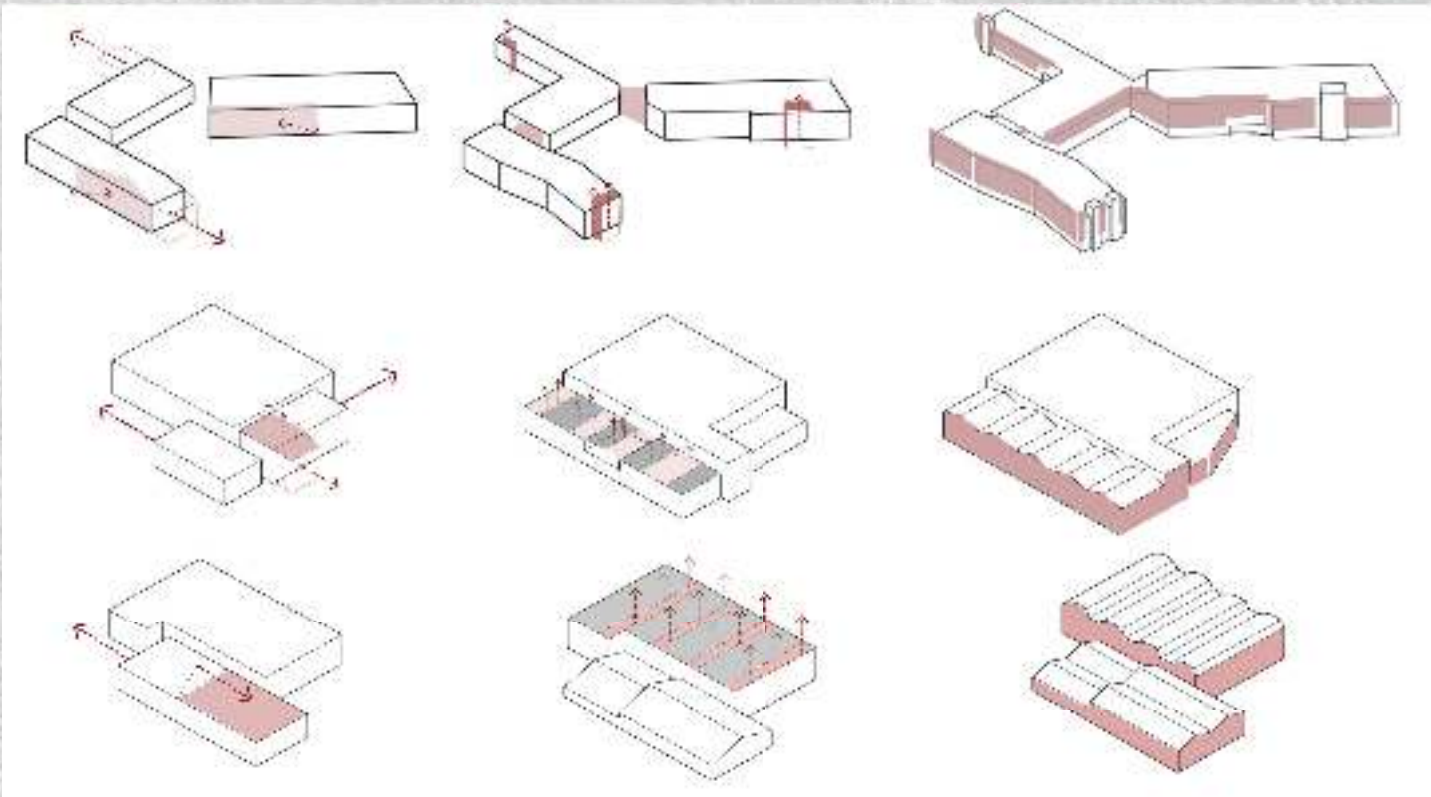
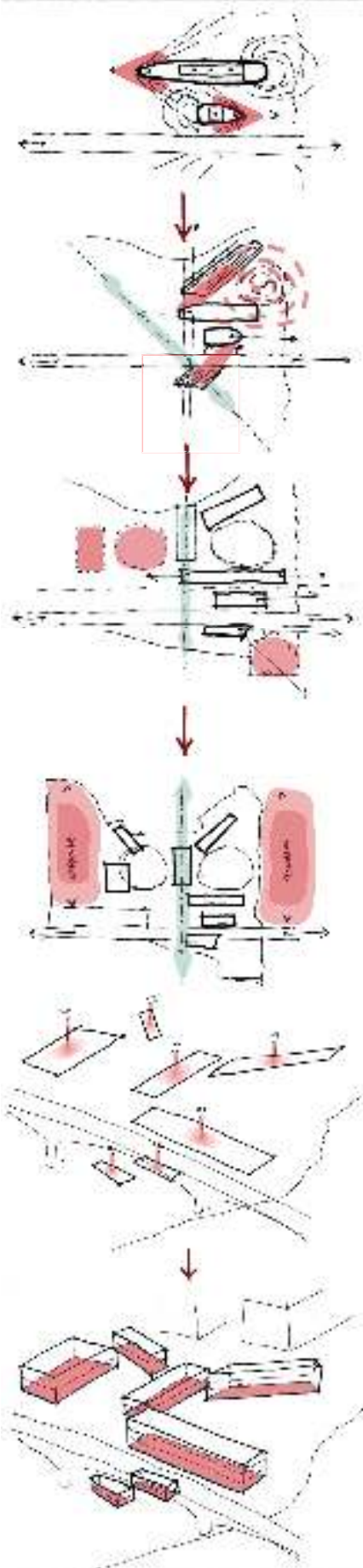


A New Engineering Focused Learning Space Southampton, UK

An anticipated city-wide boom in 11 to 16-year olds within the Southampton City will likely result in a deficit of over 2000 school places equivalent of 15% of the population of this demographic living within Southampton by 2024. A need for new spaces will be seen within the City Centre, yet, there currently exists no facilities to capacitate places.

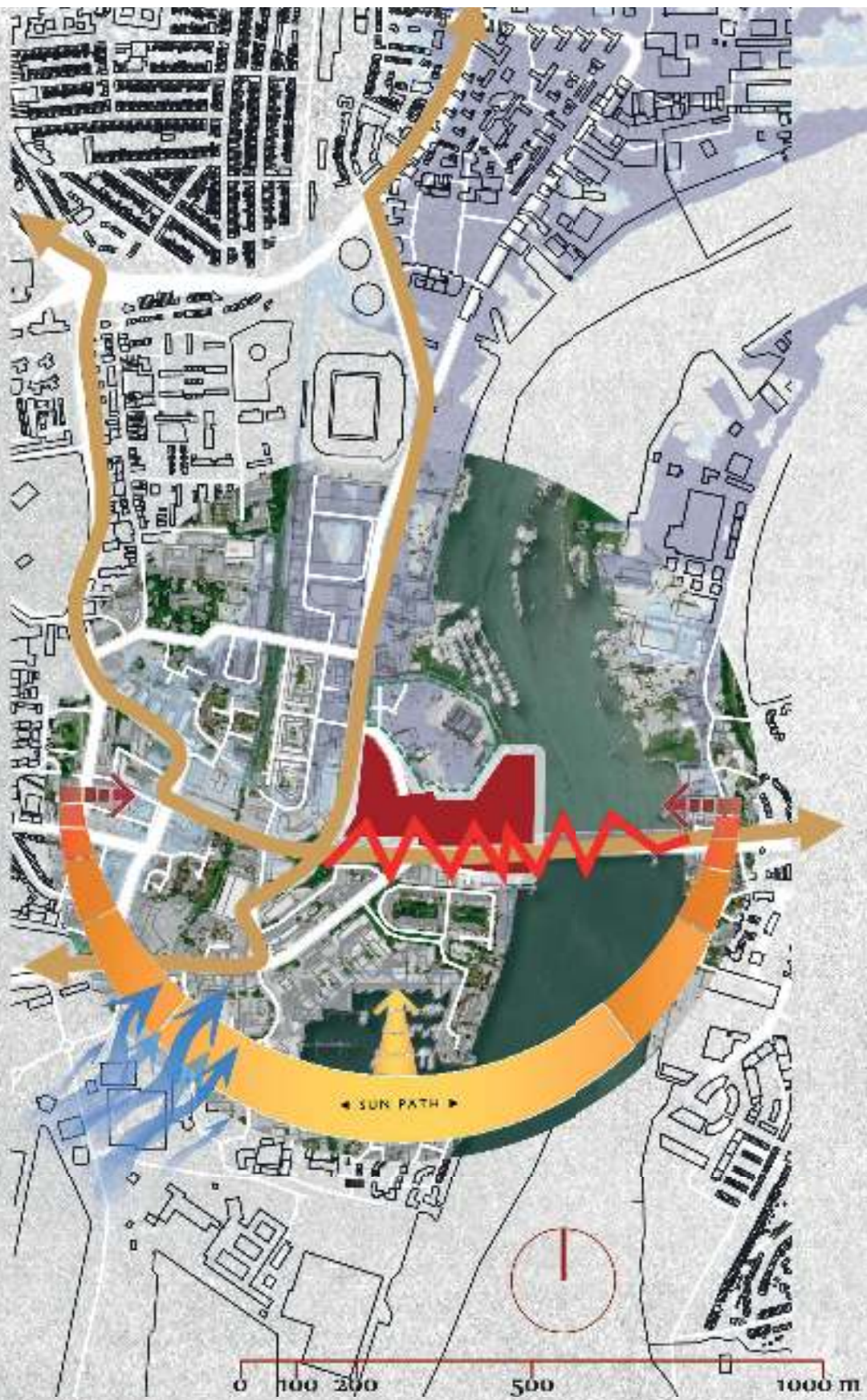
The site chosen for development is located within a unique setting of the City Centre. Located by the River Itchen, the site would provide the perfect opportunity to address the Clients requirements in providing marine and engineering learning spaces along with pupil's core education as part of the City Master Plan.

A new school would improve the attractiveness of the City and help contribute towards the local economy by creating new job opportunities through the school's alumni.



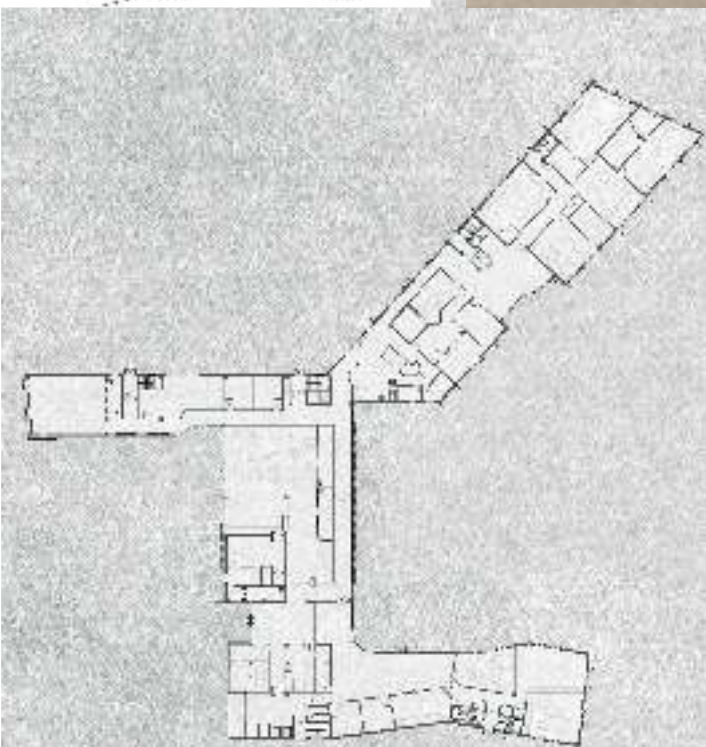
The site and the immediately surrounding context have a rich history dating back to the late 12th Century. The site is uniquely situated so that the Itchen Bridge flyover passes over part of the site. The placement of buildings was essential to maximise natural daylight but ensure a comfortable learning environment is created.

Three masses were developed enabling phased construction to take place and create separation between public and private facilities. The main Learning Block contains all core learning spaces and is based on a finger block structure that divides spaces whilst allowing each part of the building to remain accessible. The Sports Hall will be used for PE activities, examinations and open to the public whereas the Marine Workshop and Multi-Use Hall will provide space to store maritime equipment and for public rental.



Each building is based on rectangular masses and incorporate industrial materials and forms such as brick along with metal and concrete panels. This will enable each building to compliment the industrial heritage of the site and surroundings. Central atriums used within reception areas and main 'hubs' will divide each block of the Learning Block structure and enable as much natural daylight to be received within the building. The rigid forms will be contrasted by means of canopies used extensively throughout the proposal to provide shade and create a continuous learning environment.

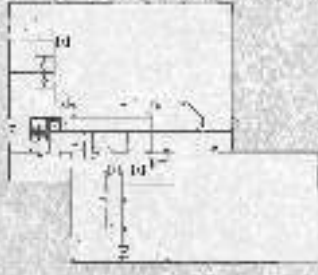
The interior of the building will also aim to contrast the rigid industrial themes by making extensive use of mass timber elements to create a warm and inviting learning environment.



Phase A - The Learning Block
Typical Floor Plan



Phase B- The Sports Hall
Typical Floor Plan



Phase C- Marine Workshop/ Multi-Use Hall
Typical Floor Plan

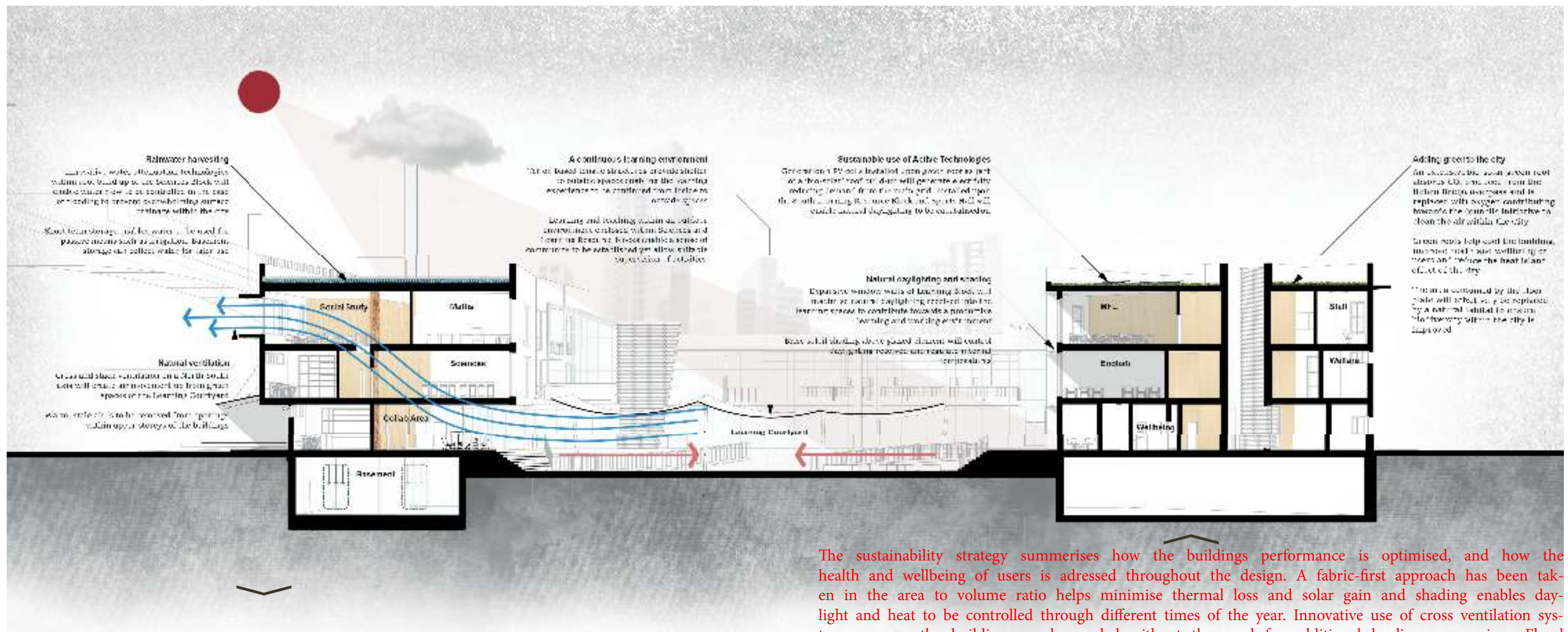




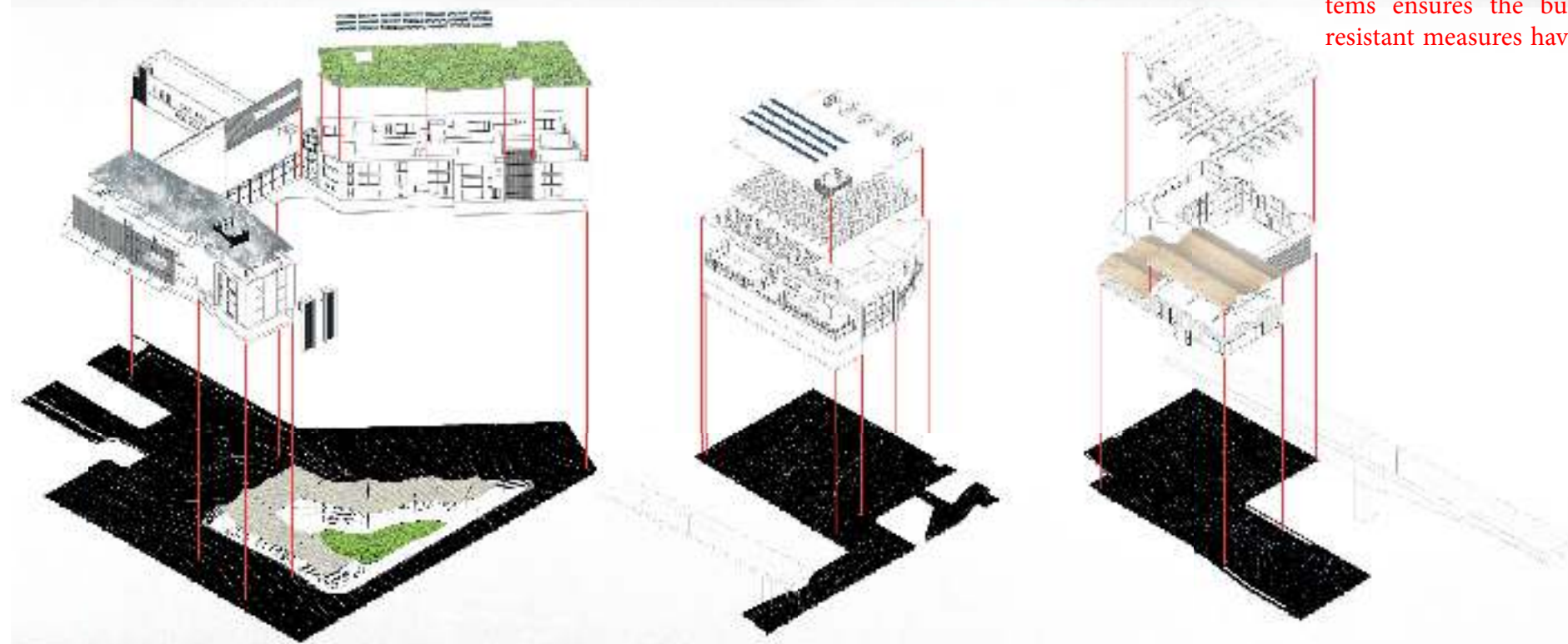
Ocean Village and Southampton Docks

Chapel Riverside Secondary School

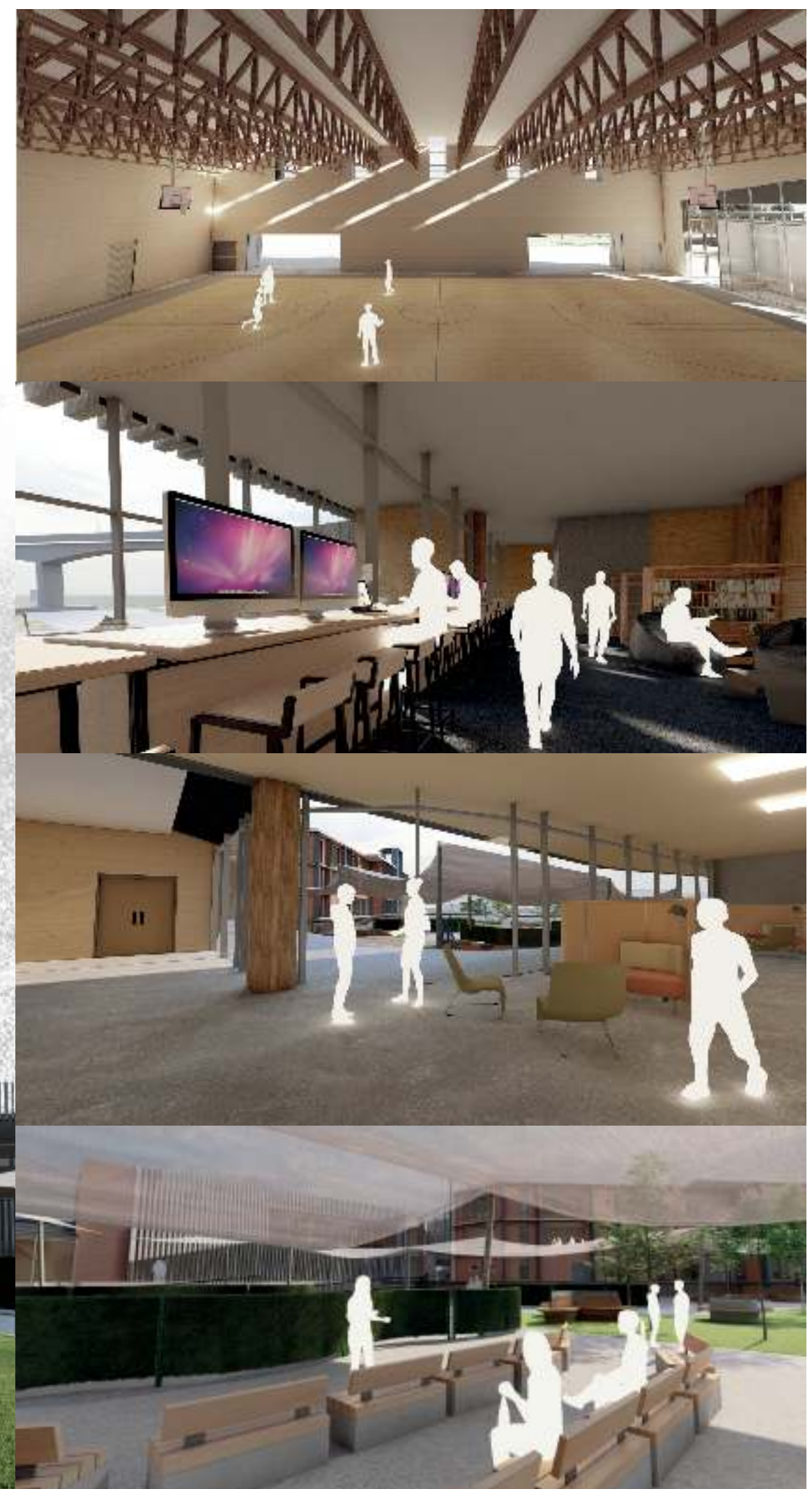
Chapel Riverside Residential Development



The sustainability strategy summarises how the buildings performance is optimised, and how the health and wellbeing of users is addressed throughout the design. A fabric-first approach has been taken in the area to volume ratio helps minimise thermal loss and solar gain and shading enables daylight and heat to be controlled through different times of the year. Innovative use of cross ventilation systems ensures the building can be cooled without the need for additional loading on services. Flood resistant measures have been taken through specification of a blue roof to ensure urban flooding is minimised.



The Continuous Learning Environment is an ideology that has been implemented to form a strong identity of the school. Outdoor spaces bring indoor learning out in response to safety issues related to the pandemic and encourages outdoor learning. Tensile canopy structures ensure sheltered spaces are created to ensure all year round use and create versatile spaces accessible from the learning block, yet can be supervised throughout the day.



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A key feature of the technology specified within the school involves the incorporation of innovative timber-based loadbearing products and systems such as CLT and glulam. These are formed from timber laminates, pre-manufactured to size and shape before delivery to site. The associated carbon and energy consumption involved with manufacture and delivery is less than traditional materials such as steel and concrete. However, unlike natural timber, these materials have improved structural properties and are naturally fire resistant.



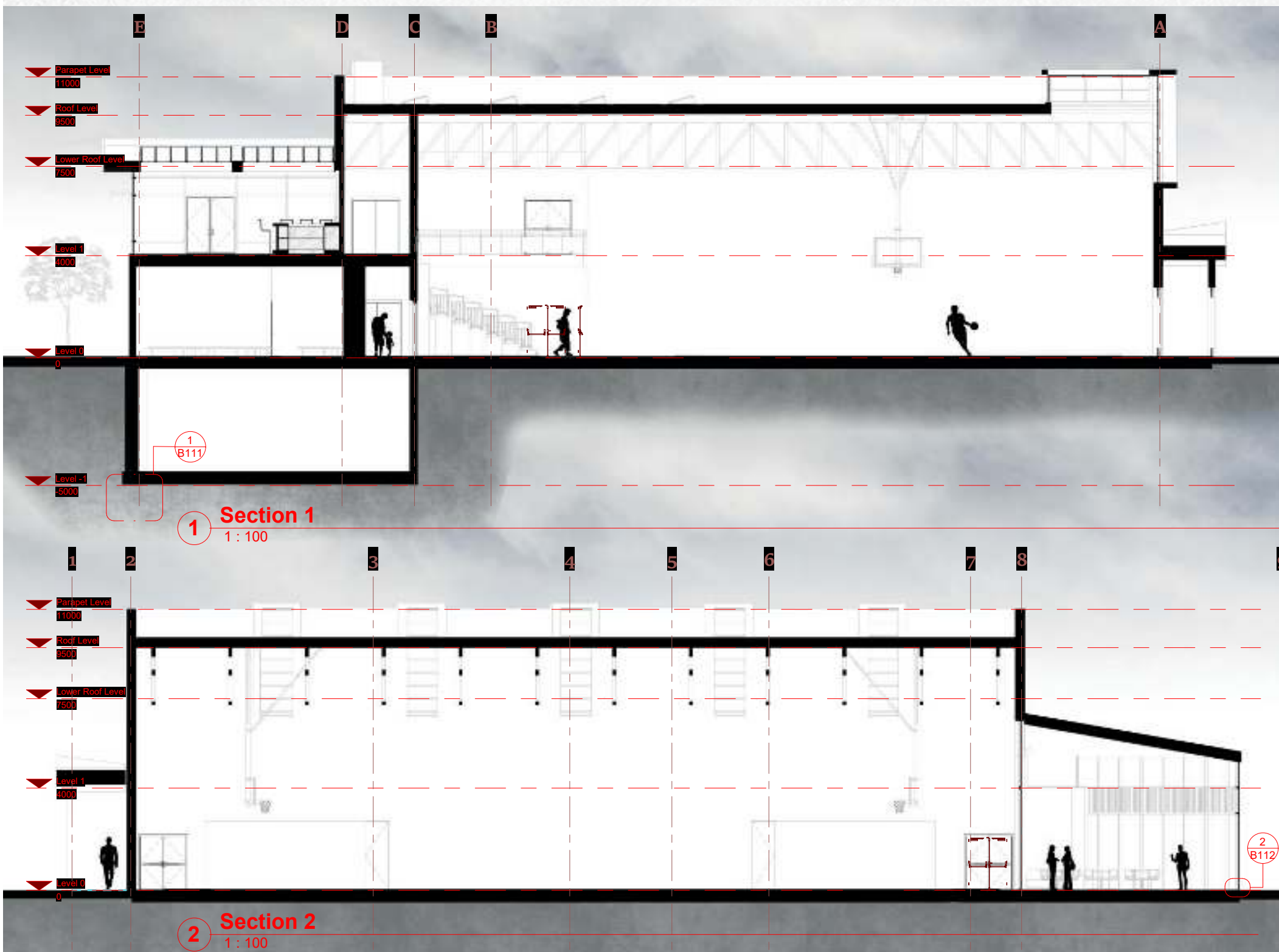
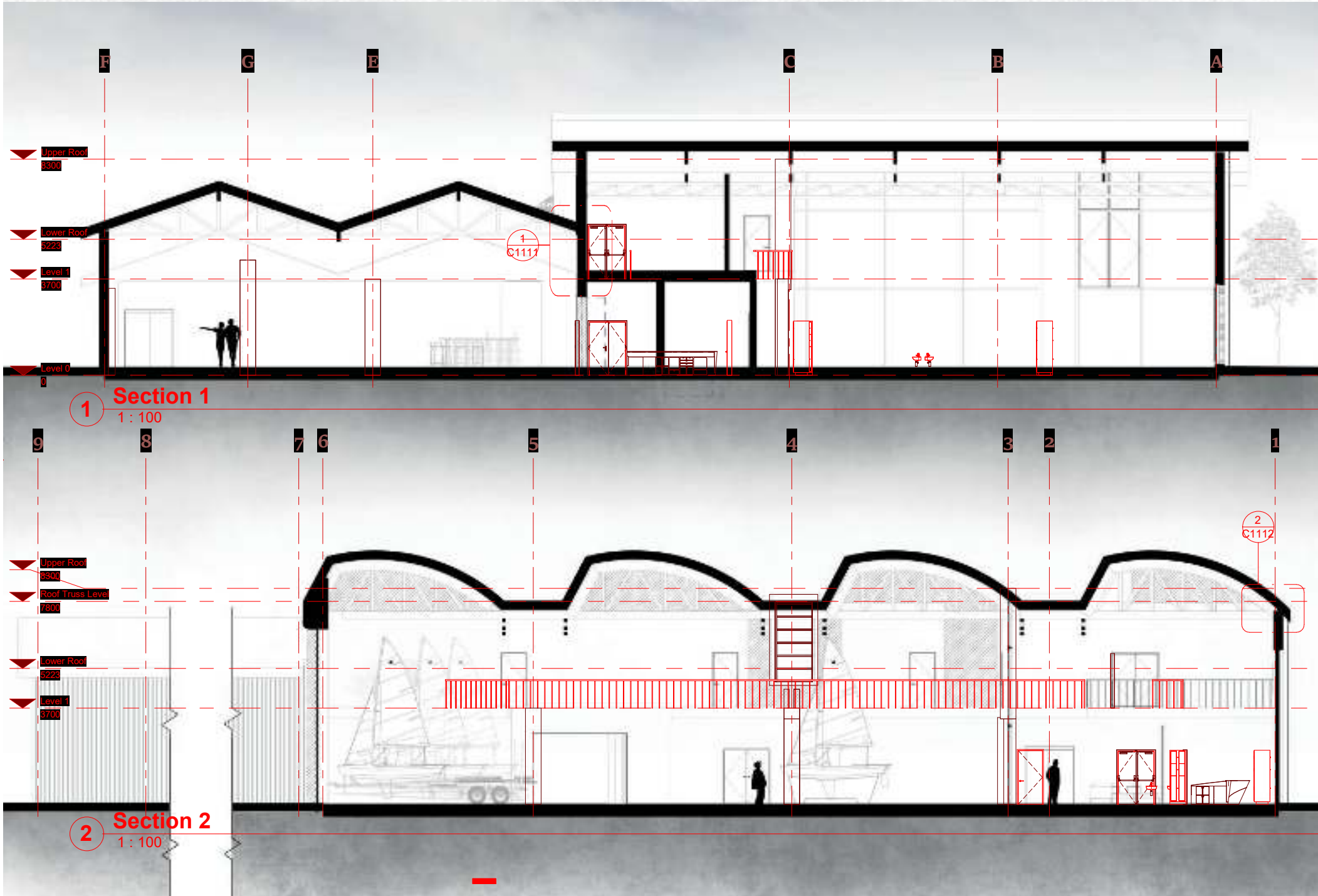
Timber-based infill walling between structural elements not only ensure insulation can be maximised but help reduce the self-weight of the building and loadings on foundations.



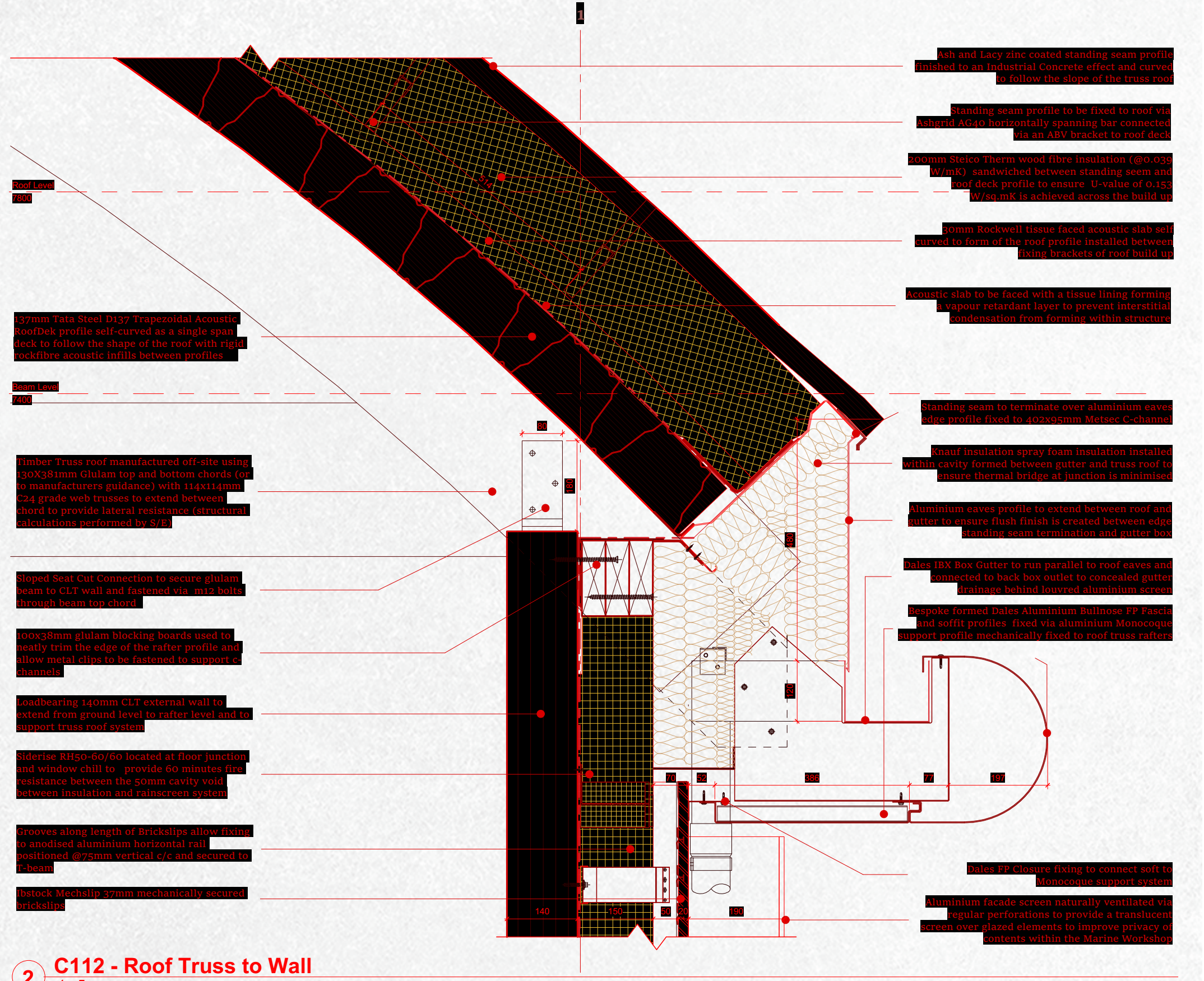
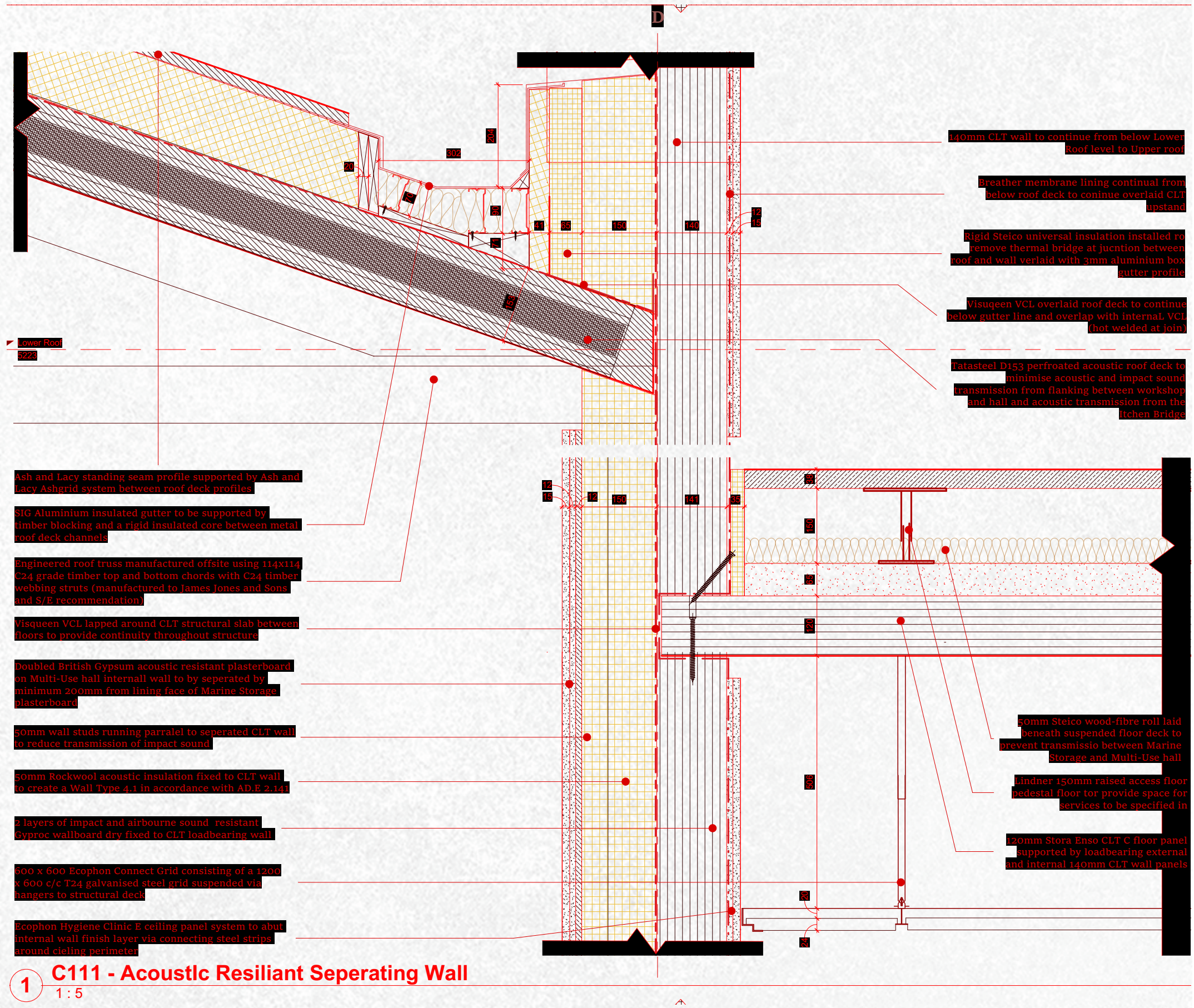
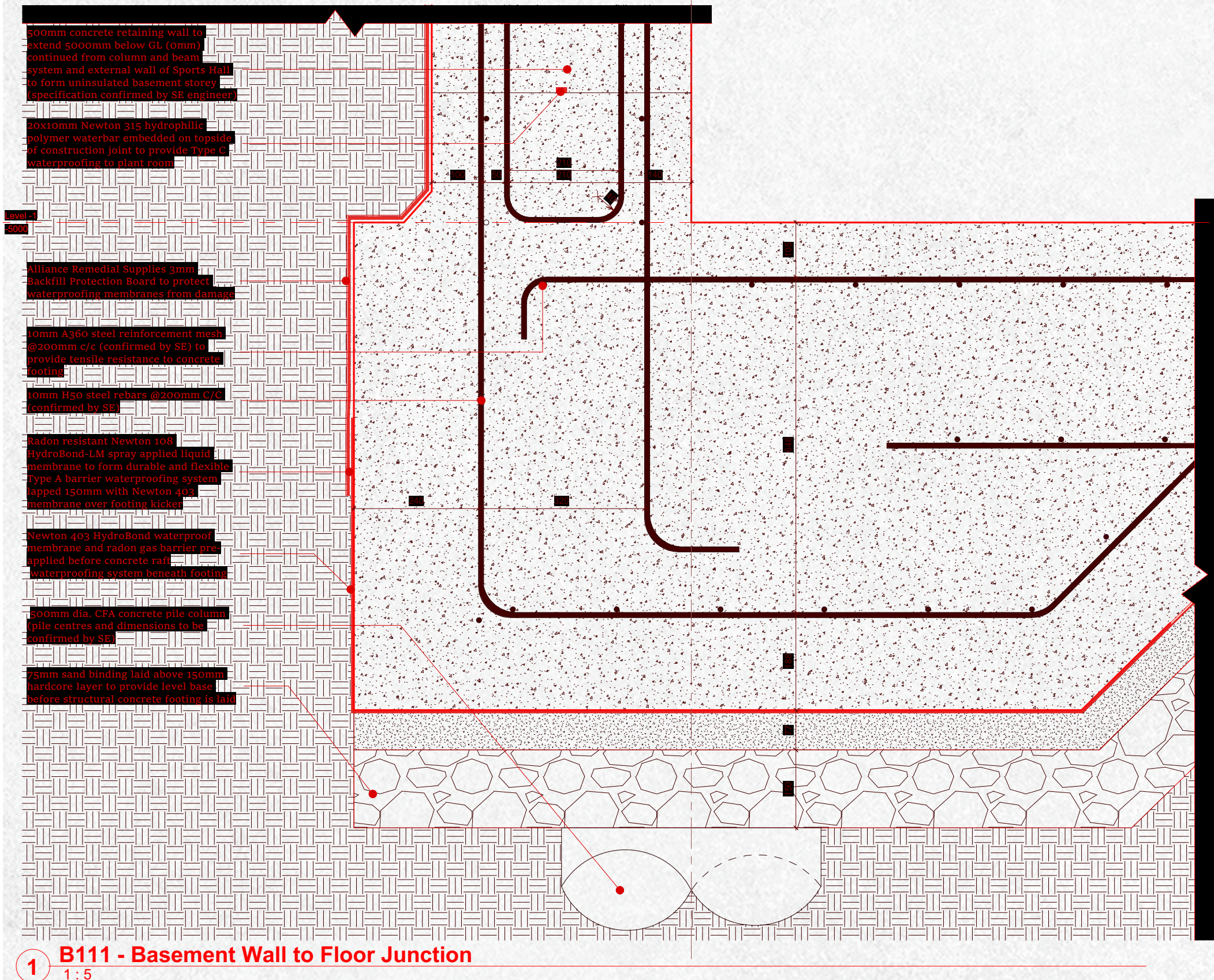
2 A120 - Typical Infill External Wall
1:5

2 A121 - Acoustically Separated Internal Partition

Connections between walls and floors had to ensure the risk of moisture ingress could be minimised. The correct specification of membranes and roof linings helped ensure that any chance of moisture ingress through the roof build up was completely removed. It was important that blue roofs were specified which are designed to attenuate and control the release of water during a storm, reducing the chance of urban flooding.



Pile foundations ensure the weight of the building can be transferred directly down through the sub-base to solid strata. Located adjacent to the River Itchen requires that this system is used to ensure that the structural stability is provided and the chance of heave or subsidence occurring is minimised. Plant and storage will be provided within the basement, therefore, thermal insulation is not required.



Structural engineered truss roof will ensure bespoke curved shapes within the roof can be formed and will bear upon the loadbearing elements of the external walls. Metal roof decking can be curved to follow the roof and ensure protection from the elements. Roof elements and finishes will be fixed via mechanical fixings instead of using adhesive to ensure the buildings can be dismantled instead of demolished at the end of its usable life.

The ground bearing floor is to be constructed from concrete that forms a raft foundation and bears upon the earth. Perimeter upstands of blockwork can protect the wall from moisture ingress whilst internal insulation of the floor will minimise thermal transfer between the spaces and the ground. Exterior drainage will be used to allow surface water to be removed from external slabs and minimise health hazards arising.

