

Floating Roof

The main roof of the Phase 1 building extends to the southeast, providing a triple-height welcoming space and an immediate solar and rain shelter to students arriving from the new pedestrian gate on Hurst Road. The main roof cantilever is supported by a combination of slim circular columns and concealed roof structure.

The roof is extended on the remaining three sides of the larger volume; the projection is shorter to maximise natural light to the classrooms.

An additional roof volume directly above the central atrium of the building provides daylight to the central atrium via clerestory windows.

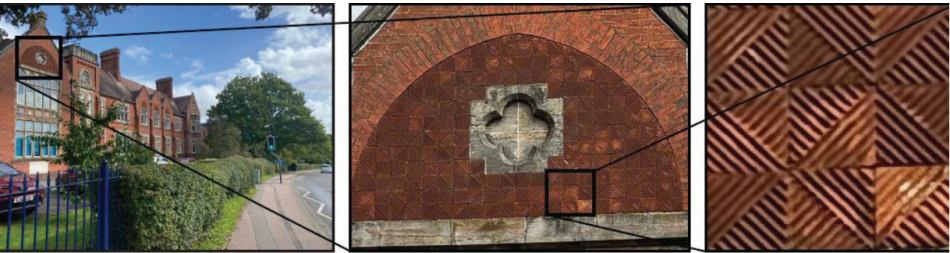
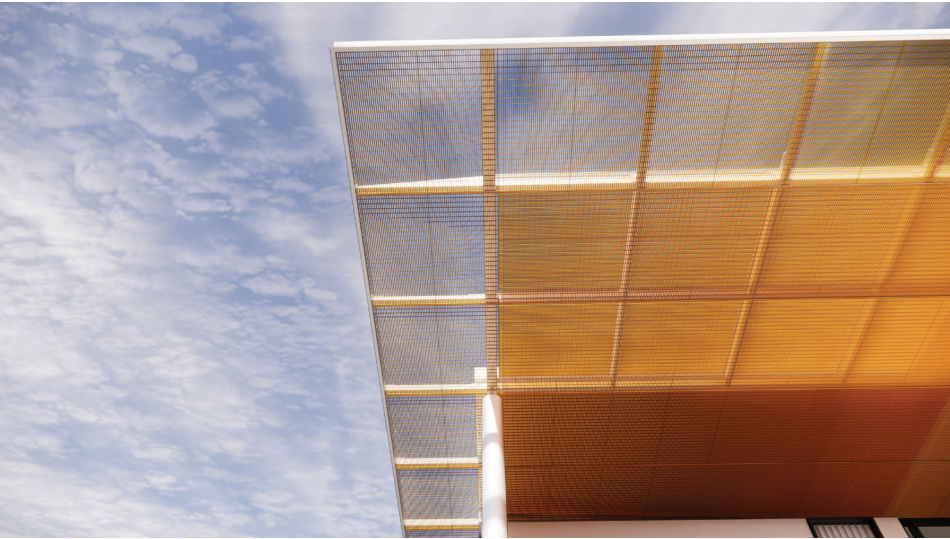
A splash of colour

The floating roof presents an opportunity for a distinctive aesthetic treatment to its highly visible soffit. The roof's underside will be treated with architectural louvre panels, providing solar shade without impacting access to daylight. Panels will be treated in a dark gold / light orange powder coated finish, referencing the brick tones in the other buildings found on campus and contrasting with the neutral colours of the cladding below.

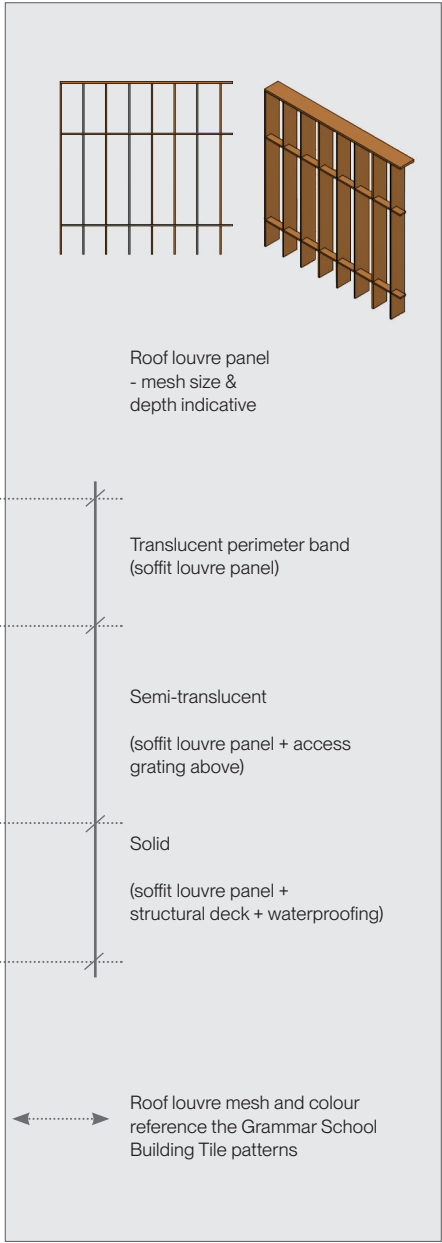
Sunlight on the louvre panel profiles result in a dynamic play of light and shadow, and a fluctuation of tones - gold to light orange to ochre - depending on the time of day.



Preliminary View - Phase 1 Technology Centre - approach + main entrance overhang



The facade makes reference to the terra cotta tiles of the Grammar School.



The roof makes reference to the colour tones of the Grammar School.

4.7 Façade & Materials

There are two façade types that reflect the organization of the Phase 1 building:

- Classroom façades - The southwest and northeast elevations concentrate the windows to all classrooms and offices.
- Circulation façades - The southeast and northwest elevations have large areas of solid panelling that frame the glazed circulation zones such as the main stairs and access doors.

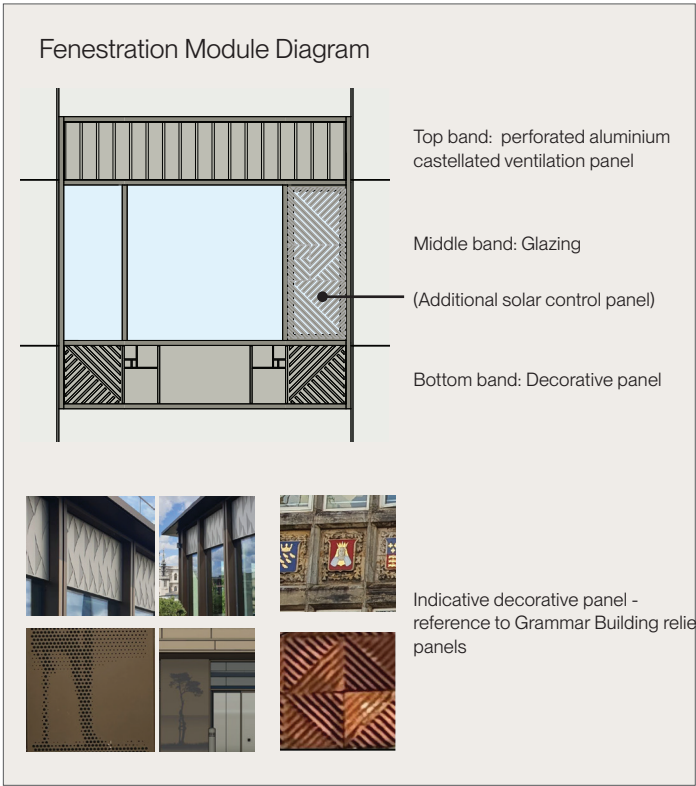
The classroom façades are articulated with fenestration modules that reflect the concept of 'building as open book' and the structural grid of the building. Levels 1 and 2 are formed with 3x3m modules that are further subdivided in three horizontal bands with different functions: The top band is a perforated and profiled aluminium panel that facilitates the air intake for the decentralised ventilation system serving the classrooms. The larger middle zone includes fixed and openable windows and provides daylight to classrooms. Clear, solar control glazing ensures thermal performance requirements and optimal natural light levels.

The bottom band includes a zone for decorative panels, referencing the coat of arms reliefs and pattern tiling found in the Grammar Building. The decorative panels create a visual connection between the College's history and the courses taught at the Technology Centre. Strategically located perforated aluminium panels at level 1 increase the protection from the southwest sun.

At ground floor, the fenestration modules are adjusted to suit the higher ceiling height and conceal plant areas. The window framing next to the building's main entrance is omitted to provide an external protected area with perimeter benching, enhancing the sense of welcome.



Hurst Road elevation - Classroom facade.



Façade articulation & materiality

The façades of the circulation cores have a central fenestration element that splits the building in two, with almost equal sides. The southeast elevation is anchored by a full height glazed stair and lift core, flanked by two, mostly solid walls with external 'arrival pockets' acting as the main entrances to the building. Two smaller fenestration modules on either side of the stair recall the larger modules on the classroom facades and provide additional daylight to corridors and classrooms.

The northwest elevation will be similar to the southeast in its overall composition; however, the central secondary stair will have reduced glazing to limit the amount of exposure from western sun. Air source heat pumps (ASHP) are located at the foot of this façade and are fully screened from view with planting of shade adaptive climbers in front of an a combination of perforated aluminium profiles on two sides and a dense, acoustic aluminium panel system shielding the adjoining library from noise.

The predominant cladding material will be a polyester powder coated aluminium system, in line with the College's aspiration for a contemporary, distinct architectural presence to complement the historic buildings on site. Solid wall areas will have neutral white / light grey aluminium panels to contrast with light bronze tones of the fenestration module frames and stair glazing. Infill panels within the fenestration modules will be profiled and perforated to achieve the ventilation requirements and ornamental motifs in a complementary light bronze tonality. The acoustic and visual screening to the ASHP enclosure behind the planted adaptive climbers will match the powder coated finish of the Technology Building.



Reference to red / orange hues



Barton Science Centre, Tonbridge School, BDP.

Light bronze frame



Main access elevation - Circulation facade.

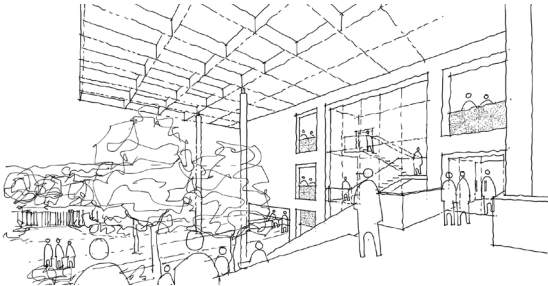
Phase 2

The new building completes the sense of arrival from Hurst Road; its volume and appearance are dictated by the Phase 1 roof and the landscape. The single storey building has split roof heights, with a higher area to accommodate the technical requirements of the internal activities and the equipment used. The southwest elevation is integrated with landscaped steps and terraces that provide amenity areas for students and an alternative route to the first level of the Phase 1 building via a link bridge.

The southeast façade, facing the proposed linear car park, is composed as a complementary ‘garden wall’ backdrop to the row of trees and is anchored by the landscaped steps on the southwest front. It contains strategically located door openings to suit the technical uses and a clerestory window that provides controlled natural light to the inside. The clerestory window extends to the northeast elevation, where a large, glazed opening provides a view to the playing field from the student’s breakout room.

The northwest façade includes fenestration modules that reference those of the Phase 1 building, implementing an architectural continuity that contributes to the identity of Hurst Quad.

The Phase 2 elevations will match the colour and material palette of the Phase 1 building.



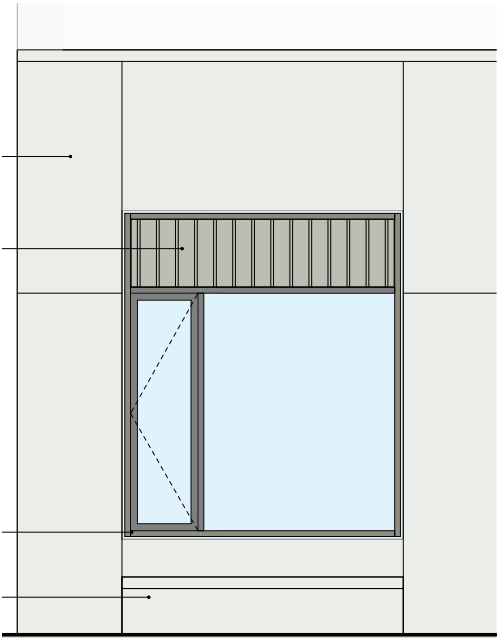
Phase 2 concept sketch shown at HDC Pre-App Meeting 3.



Hurst Road elevation - Phase 1 and Phase 2.



Phase 2



Phase 2 typical bay.

4.8 Structure

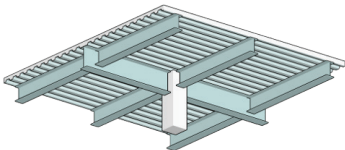
The proposed structural form of both buildings is a steel frame, with internal composite floors and a lightweight roof deck.

The three-storey Technology Centre is proposed to be framed in steelwork, with the internal floors made in composite slabs of reinforced concrete on profiled metal decks.

A steelwork structure has been chosen for the following advantages:

- Tried and tested construction with proven performance
- Good acoustic performance
- Readily availability of materials and wide choice of specialist contractors
- Large extent of off-site prefabrication
- Speed of erection
- Flexibility to achieve large spans
- Comparatively low and easier to quantify cost

The services distribution within the deep structural zone is achieved by openings within the webs of the steel beams, carefully coordinated to avoid affecting the structural performance of the steelwork, with strengthening plates where necessary.



Steel frame with composite slabs schematic.

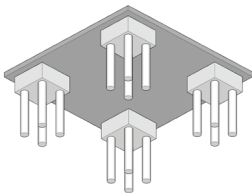
The internal steelwork will have fire protection in the form of intumescent paint coating.

The roof covering is proposed to be lightweight metal panels with insulation and a membrane, fixed directly to sloping steelwork. This provides support for photovoltaic cells and maintenance access.

The Phase 1 building uses a similar steel-framed structural solution, with the omission of the upper composite floors.

Substructure

A detailed geotechnical investigation has been carried out for the site, and recommends the use of deep piles for the foundation design. These are to be constructed with buried reinforced concrete pile caps under each column and shear wall.



Piles and pile caps schematic.

The single-storey building has reduced loads and is likely to be founded on shallow pad footings. This option will be explored during the detailed design phase.

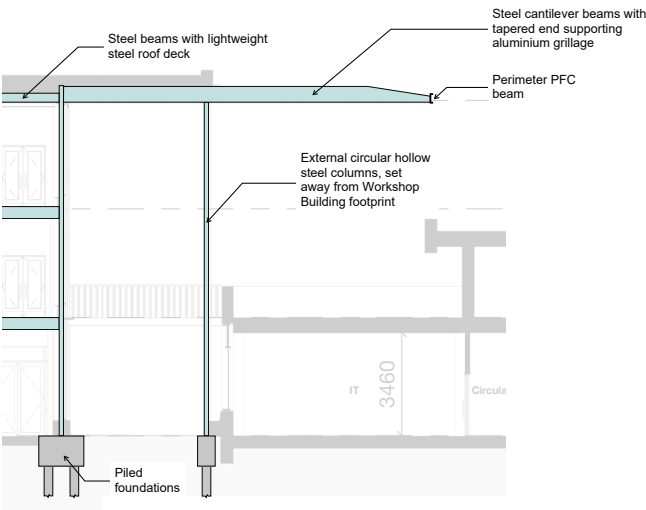
For both buildings, the ground floor will be a suspended reinforced concrete slab built over a damp proof membrane to prevent water ingress. A compressible layer will account for any heave and movements in the clay caused by the nearby trees.

Roof canopy

Beyond the north, south and west elevations, the roof oversails the Phase 1 building footprint by 2.5m. This is achieved with shallow T-section cantilever beams connected to the main building structure, supporting a translucent covering.

Towards the east elevation, the main structural feature is a roof canopy that oversails 12m from the building footprint. This will be achieved using steel beams supported on external three-storey columns, with 5m backspan and 7.5m cantilever span beyond the columns.

The external columns, supporting the canopy, are slender circular hollow sections in galvanised steel.



Preliminary section through roof canopy.

4.9 Ventilation

The development has been designed to provide a healthy internal environment for pupils and staff through a balanced mechanical ventilation approach incorporating heat recovery with localised extraction systems where required.

Openable windows are also provided to classrooms although are not relied upon for ventilation in line with the acoustic strategy. The acoustic strategy is based on surveys carried out on the site and more information can be found in the accompanying Noise Survey and Impact Statement.

General Classroom Ventilation

Classrooms and offices will be ventilated using Mechanical Ventilation with Heat Recovery (MVHR) units, each with intake and exhaust air ducted to louvres in the facade.

The system has been designed to:

- Provide continuous supply of filtered outdoor air to teaching and occupied spaces,
- Extract stale air from classrooms and ancillary accommodation,
- Recover heat from extracted air to improve overall energy efficiency and reduce operational carbon emissions, Maintain internal air quality in accordance with current Building Regulations and BB101 guidance,
- Assist in maintaining comfortable internal temperatures throughout the year.

Mixed Mode Ventilation

Apart from providing an energy benefit, the ability to open windows is important for many people's sense of well-being. Teachers often prefer the option to open classroom windows and influence their environment. All classrooms will have opening windows which will have restrictors (or be located behind a perforated panel) in line with DfE guidance for safety.

Atrium

The classrooms are arranged around a central atrium space. The central atrium arrangement supports efficient distribution of services and assists with passive air movement and spatial legibility within the building.

An MVHR unit will serve the ground floor area of the atrium where small events may be held. Ventilation rates will be designed to satisfy the requirements of:

- Building Regulations Approved Document F,
- BB101: Guidelines on ventilation, thermal comfort and indoor air quality in schools
- Relevant CIBSE guidance.

Specialist Teaching Areas

The Design & Technology (DT) workshop / woodwork area in the Phase 2 building will include a dedicated local extract ventilation (LEV) system with extract points positioned at woodworking machinery and dust-producing equipment. Following filtration, the exhaust will be to above.

The LEV installation will:

- Capture dust and particulates at source; Include appropriate filtration systems prior to discharge,
- Be designed in accordance with statutory requirements regarding Control of Substances Hazardous to Health (COSHH) and Health & Safety Executive (HSE) guidance for workplaces.
- Minimise the release of airborne particulates to both internal and external environments.

A separate LEV system will be provided for welding and metalwork. The exhaust will be to above.
A laser cutter will also be located in the workshop and include integral filtration.

Extract discharge locations will avoid adverse impacts on nearby receptors and comply with environmental health requirements.

Energy and Sustainability

The energy strategy is captured in the Sustainability section of this report. The buildings have been designed with a fabric first approach to reduce heating and cooling loads. Overheating studies have been carried out to inform the facade design, including recommendations on glazing area and shading.

The MVHR strategy forms part of the wider sustainable design approach for the development by:

- Reducing heating demand through heat recovery,
- Improving energy efficiency,
- Supporting good indoor environmental quality,
- Contributing toward the overall operational performance of the building.

Noise

All mechanical plant and ventilation equipment will be selected and installed to ensure that operational noise does not adversely affect neighbouring properties or teaching environments. External plant will be acoustically treated where necessary.

For more information, refer to the Noise Survey and Impact Statement submitted as part of this application.

Conclusion

The proposed ventilation strategy provides an appropriate and compliant solution for the school environment, ensuring suitable indoor air quality, occupant comfort, and effective extraction from specialist teaching spaces while minimising environmental impacts.

Sustainability

5



5.1 Policy Context

This section outlines the national, district and local policy framework relevant to the sustainable design and operation of the new Technology Centre (Phase 1 and Phase 2) at The College of Richard Collyer.

While some policies are primarily directed at major developments, the scheme has been designed to positively respond to the principles and expectations within all relevant guidance.

The College of Richard Collyer New Technology Centre Planning Statement sets out all the relevant policies in further details and undertakes an assessment of the proposed development.

Sustainability has been embedded throughout the design development of the Technology Centre. The scheme delivers a modern educational facility while enhancing the campus landscape, improving access and delivering long-term resilience. The development includes an all-electric energy strategy, biodiversity enhancements and robust climate adaptation measures.

Overall, the new Technology Centre creates a future-focused, low-carbon learning environment. The development is fossil fuel free, strengthens green infrastructure, promotes active travel and aligns with HDC’s direction for climate-positive development.

The relevant, key policies considered include:

Horsham District Planning Framework (HDPF 2015):

- Policy 35: Climate Change
- Policy 36: Appropriate Energy Use
- Policy 37: Sustainable Design and Construction
- Policy 38: Flooding

Emerging Horsham District Local Plan 2023–2040 (Version JB 01, March 2026):

- Strategic Policy 6: Climate Change
- Strategic Policy 7: Appropriate Energy Use
- Strategic Policy 8: Sustainable Design and Construction
- Strategic Policy 9: Water Neutrality
- Strategic Policy 10: Flooding

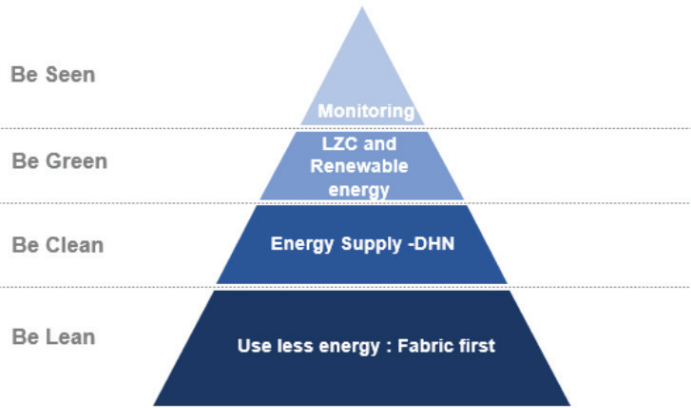
National Planning Policy Framework (December 2024) and relevant planning practice guidance.

5.2 Design Response

The scheme effectively responds to the sustainability principles and guidance, with key sustainability features embedded into the design.

Energy, Carbon & Building Performance – HDPF Policy 35, HDPF Policy 36, HDPF Policy 37, NPPF

The design of the new Technology Centre will follow the energy hierarchy to deliver the highest energy efficiency feasible.



Energy Hierarchy (HDPF, 2015 – Policy 36)

Be Lean

A fabric-first approach minimises energy demand from the outset. Key measures include:

- Optimised window:wall ratios (30%) balancing daylight and thermal load
- Shading via roof overhangs, horizontal fins, and external plant spaces
- High performing fabric
 - U-Values:
Walls 0.15W/m² K, Floor 0.12W/m² K, Roof 0.12W/m² K
 - Air tightness:
3 m³/(h m²) at 50Pa
- Efficient lighting with daylight controls
- Natural ventilation available to all users through operable windows

Be Clean

- Noting that there is no local heating or cooling network within the school campus or surrounding areas, the buildings will be served by a local air source heat pump (ASHP) to provide electricity generated heating and cooling. This is in line with the heating and cooling hierarchy.
- An all-electric strategy (including for domestic hot water), with no on-site combustion

Be Green

An all-electric servicing strategy capitalises on the decarbonising energy grid, including:

- Air Source Heat Pump (ASHP) for efficient heating and cooling
- Mechanical Ventilation with Heat Recovery (MVHR) for improved indoor air quality and reduced energy waste
- Roof-mounted solar photo voltaics (PVs) to provide renewable energy, and orientated to maximise generation efficiency

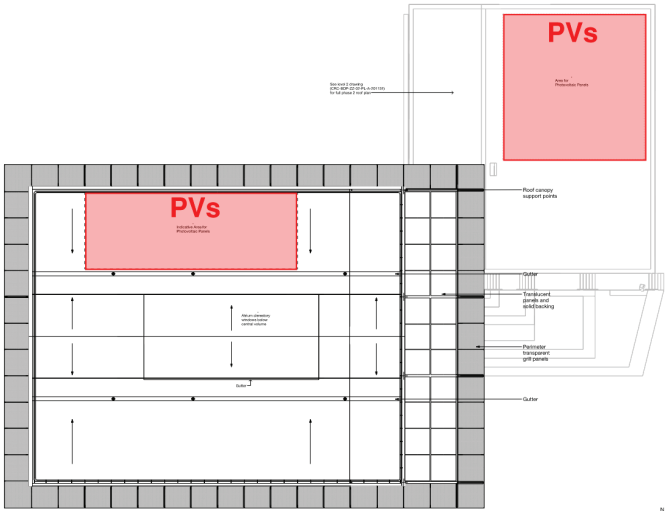


Figure 5.2: Indicative PV locations on the Phase 1 and Phase 2 buildings.

Be Seen

- Sub-metering for all major water and major energy consumption

**Water & Sustainable Drainage –
HDPF Policy 35**

Following consultation with Horsham District Council, a Water Neutrality statement is not required for this development.

The proposals nevertheless adopt good-practice approaches including:

- Shut-off valves and leak detection
- Low flow fittings where appropriate, aligning with BREEAM Excellent requirements
- Reduced irrigation demand driven by landscape species selection

SuDS measures include:

- Concrete block paving, with a permeable build-up within car park zones
- Geocellular Storage Systems, involving 4No. geocellular storage tanks located on the site

BREEAM Water – Emerging Plan Strategic Policy No9

As mentioned in the HDC’s Draft Emerging Policy, the minimum standards for BREEAM ‘Excellent’ within the Water category shall be achieved.

For BREEAM New Construction Version 7 Excellent, the minimum Water standards are;

- Wat 01 - Water Consumption: 15% improvement over BREEAM baseline fittings (1 credit equivalent)
- Wat 02 - Water monitoring: A water meter is installed on all incoming potable water supplies entering the building

Flooding – HDPF Policy 38

A site-specific flood risk assessment has been produced for the new Technology Centre, and the full report included within this application.

The flood planning maps from the Environment Agency (figure below) confirms the proposed development is located in Flood Zone 1, defined in the NPPF as land having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1% AEP).

Surface water attenuation systems are designed to accommodate the 100-year return period storm with an allowance for 45% climate change increase. Permeable paving and geocellulor storage tanks are included to reduce the surface water discharge rate to the sewer network.

Landscape, Biodiversity & Green Infrastructure – HDPF Policy 35

The landscape strategy creates a connected, ecologically rich campus environment. Measures include:

- Retention of 50 existing trees
- Wildflower meadow areas.
- Species-rich planting to encourage wildlife diversity and resilience
- Drought tolerant plant species to reduce irrigation demand
- Biodiversity net gain (BNG) over 10% increase

**Climate Resilience –
HDPF Policy 35, HDPF Policy 37, HDPF Policy 38, NPFF**

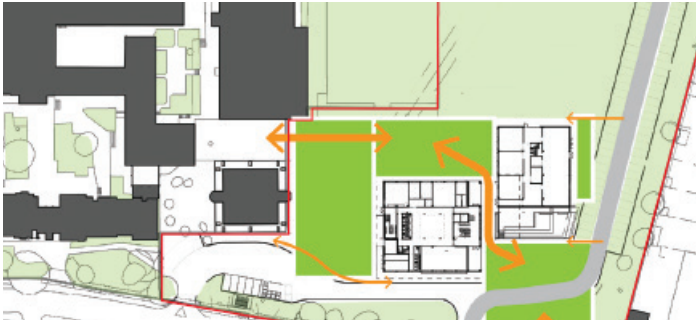
The proposals incorporate adaptation measures including:

- Passive cooling using exposed thermal mass, external shading and glazing optimisation
- Ventilation, heating and cooling design has been tested against future weather files, as ‘2080 low’ as per Department for Education guidelines. The design incorporates peak-lopping and operable windows.
- To minimize vulnerability to flooding, roof drainage designed to accommodate Category 2 storm rain intensity, aligning with best practice
- Natural ventilation is available through operable windows

Sustainable Travel – HDPF Policy 35, HDPF Policy 37

The design supports sustainable forms of transport, including:

- 40No. covered cycle spaces
- 18No. EV charging points incorporated into the new car parking spaces, and capacity for future expansion
- Improved pedestrian links across campus spaces



Pedestrian movement concept

Lighting

6



BDP.

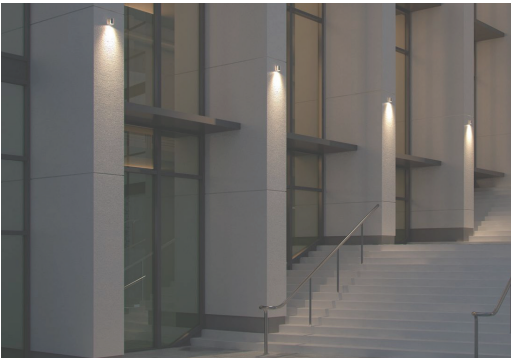
6.1 Indicative External Lighting

The indicative external lighting will be predominantly lighting required for safe access to the buildings during the early morning and evening hours in the winter months.

Preliminary designs for the phase 1 lighting include bollard lighting to pathways where there is no other option, wall lights mounted on the new building, uplighting to some trees and lighting to the soffits of the recessed entrance areas.



1. Lighting Bollards



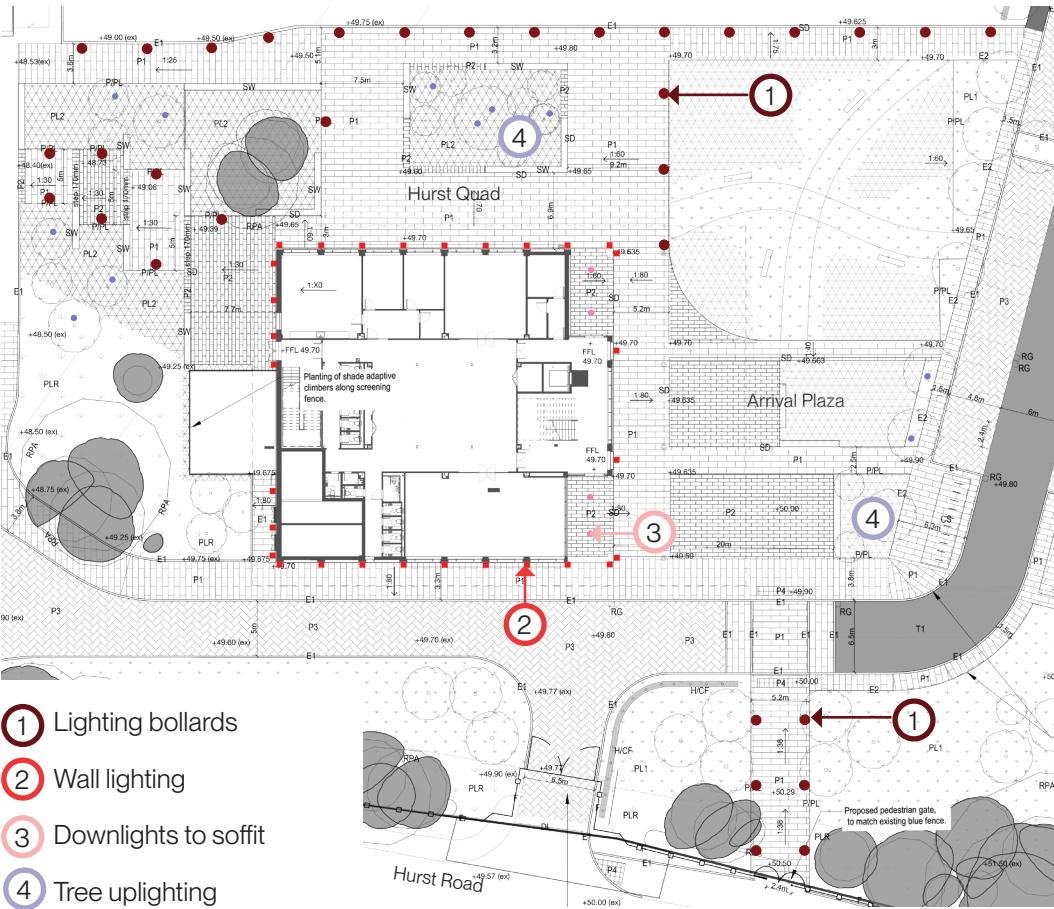
2. Wall light to provide general lighting to sides of building.



3. Lighting to recessed entrances.



4. Lighting to feature trees.



- ① Lighting bollards
- ② Wall lighting
- ③ Downlights to soffit
- ④ Tree uplighting

Phase 1 Indicative Lighting