

# Shared Learning Event

## Completed LEIP Projects: Lessons learnt



# Introduction

Monifieth Learning Campus (top), Faifley Community Campus (middle), and Drumgeith Community Campus and Greenfield Academy (bottom)



## Steven Anderson Scottish Futures Trust

This event continues our Shared Learning Events series, sharing insights from the Learning Estate Investment Programme (LEIP). Over the years, these sessions have covered a range of topics, including refurbishment, Additional Support for Learning, and in this case, lessons learnt from completed projects.

The programme is now at a pivotal stage, halfway through its 12-year delivery cycle. Since the last session, nine new schools have opened, bringing the total in operation to 18 – about 40% of the 46 projects – with others at various stages of construction and development. As more schools become operational, feedback indicates that all are meeting programme outcomes and receiving full funding, signalling early success.

This summary highlights three projects, illustrating two common themes: community and Passivhaus design. These schools go beyond traditional educational spaces, serving wider community needs and aligning with Scottish Government and COSLA learning strategies. All three projects were delivered to Passivhaus standards and respond to the local authorities' own aspirations to deliver net zero. While sharing common principles, each project represents a tailored response to local needs, sustainability, and community.

### Monifieth Learning Campus

Hosting 1200 young people, the guiding principles for this project are sustainability, equity of access, nurture, inclusion and flexible spaces. These will help Angus Council meet its ambitions to transition to net zero carbon and align to the principles of the Angus Schools for the Future programme.

### Faifley Community Campus

A new development bringing together education and community facilities within a single, vibrant building. Designed to Passivhaus standards and meeting Net Zero Public Sector Building Standard (NZPSBS) targets, the project will serve as an exemplar for sustainable design in West Dunbartonshire.

### Drumgeith Community Campus and Greenfield Academy

Replacing two aging school buildings, the new campus has a strong community focus. It offers varied and flexible resources, including a community library, café, and sports and leisure and has been designed for shared ownership between school and community, with most spaces able to be used flexibly and concurrently even during the school day.

Development				Construction				Operation			
Briefing / Early	Outline Design	Planning+	PCSA / FC	Site Start >1y	Mid Build <1y	End Build <6m	Pre-Handover	Open	Yr 1	Yr 2 - Energy	2+ years
Barra Orkney Mull Campus	Shetland Carrongrange Elgin Doon Beeslack	Lenzie Peterhead Craigshill PS Forres	Broadford PS Penicuik HS	Mayfield PS Lochies Ardrossan Linburn ASN Hazelhead	Chryston HS Callander Gaelic	Liberton Caledonia Nairn Acad Wester Hailes Paisley Dumfries HS	Tain	Drumgeith Currie HS St Sophia's PS Perth HS Monifieth Faifley Peebles Whitcraigs PS Galashiels	Neilston DLC Montgomerye Pk East Calder PS	Riverside PS Beattie ASN Maybole Wallyford	Newton Farm
3	5	4	3	5	3	6	1	9	4	4	1
14 = 30%				15 = 32%				18 = 38%			
Development and Construction - 29 projects = 62%								Construction and Operation - 33 projects = 70%			

# Case Study 01

## Monifieth Learning Campus

**“The flexibility of the new building is one of its biggest successes. Many of the frustrations of the old school have been resolved, giving staff and young people far more freedom in how they teach.”**

Dave Smith, Angus Council



### Dave Smith Angus Council Lorna Denholm NORR

Dave Smith is Manager for Capital Projects at Angus Council. Lorna Denholm is Director of Education at NORR.

#### Background

Angus, with a population of just over 115,000 people, has 51 primary schools, 8 secondary schools, and two standalone early learning and child care centres.

In 2017, Angus Council published a 30-year school investment strategy aiming at providing every child and young person the best quality learning environment while maximising existing resources. As part of this, they conducted a full review of the Monifieth cluster, which led to the decision to replace the outdated 1970s High School, with a new Learning Campus. The ageing building had limited natural light, poor ventilation and accessibility, and was rated C for both condition and suitability.

#### Challenges

The early stages of the project kicked off in March 2020, coinciding with the first COVID lockdown, so the project team had to change their consultation approach quickly. Fortunately, they were already preparing to carry out several post-occupancy evaluations remotely, which gave them a chance to test new engagement methods for the Monifieth consultation. The team feels this extra planning helped them to deliver a more focused, higher quality consultation process.

#### Lessons learnt – previous projects

As the council’s largest ever capital investment, the

team wanted to make sure they learned as much as possible from previous experience. After reviewing 9 recently completed projects, the council pulled out 119 individual lessons that helped shape Monifieth. As the project progressed, another 32 lessons from post-occupancy evaluations of recent buildings were added and monitored throughout the project’s life span.

While Angus Council has traditionally recorded lessons at the end of a project, they introduced workshops at every RIBA stage for Monifieth, ensuring continuous insight-sharing rather than retrospective problem-spotting.

#### Feasibility study

NORR and Robertson led a rigorous RIBA Stage 2 feasibility study that stress-tested budget, performance, and sustainability targets, including the council’s Passivhaus ambition. The feasibility study was extended by a couple of months, allowing some key RIBA Stage 3 decisions to be made. This resulted in a more robust feasibility study, with an agreed conceptual approach, a target GIFA for the next stage, and importantly allowed the team to reset the budget and obtain approval from both the project board and the procurement Hub gateway.

#### Site strategy

The existing site in many ways dictated the site arrangement for the new building. Angus Council also had a clear vision that the new facility should sit directly behind the existing school on the access to the entry point to the site. By happy coincidence, then the new building is orientated east-west and the depth of the site left over dictated a typical Passivhaus block form. From a functional perspective the team established that 3 storeys was both workable and very efficient, so form factor, orientation and an agreed site strategy were established early in the process.

# Case Study 01

## Monifieth Learning Campus

### Lessons learnt – stage 1

- Robust Project Management and Governance
- Agreement of procurement strategy early
- Meaningful consultation
- Advanced site investigations and surveys
- Avoiding delays in appointments
- Identifying Risks at an early stage

### Lessons learnt – stages 2-3

- Develop a collaborative approach to the process
- Ensure efficiency in planning (and therefore GIFA) in each design iteration,
- Benchmark against similar projects, challenge aspects of the brief,
- Streamline meetings and reduce communication channels as much as possible
- All parties have a part to play
- Work closely with the client to ensure best value outcomes
- Take appropriate time during early RIBA Stages to ensure design and budget are aligned
- Hold a PH review at S1/S2. Agree baseline parameters. Embed the principles of the building physics in the design from the outset
- All good design is holistic
- Stage 3 and 4 activities – ensure all design models are progressing concurrently

### Lessons learnt – stages 4-5

- The outline specification was developed through all stages, reviewed with contractor and cost consultant, including M&E subcontractor, as key design decisions at key points. This resulted in a linear stage 4 and 5 process
- Early M&E partnering subcontractor involvement (from S3)

### Key lessons learnt

- Establish a clear process with clear gateway stages, and a programme with sufficient

- timeframes to allow a linear process
- Never too early to implement robust Project Management and Governance
- Set briefing and expectations – Needs vs Wants
- High quality consultation
- Early engagement of relevant designers, contractors and surveys
- Robust cost planning and change control
- Meet challenges as a team
- All team members support quality from feasibility through to construction and handover

### Post project review

Once the school had been open a few months, Angus Council carried out a Post Project Review (PPR). A key smart objective for the project was to create a building which felt bright and airy with high comfort levels. Over 94% of respondents were positive about the natural light, while temperature and air flow feedback was more mixed, with 56% satisfied despite the excellent air quality. The team continues to fine-tune building services, a key focus for future post-occupancy evaluations.

Flexible learning spaces, vocational areas including a popular barista bar, and a strong focus on daylight and human-scale design have helped redefine how students use and inhabit the building.

**“Thanks to the ongoing lessons learned approach and the smart objectives, this turned out to be one of the most comprehensive and useful PPRs we had ever completed.”** Dave Smith, Angus Council



# Case Study 02

## Faifley Community Campus

**“ I think it’s a successful project, balancing building performance and energy with community-focused, high-quality architecture, integrating shading, texture, conceptual planning, 20-minute neighbourhood principles, and net zero public sector building standards.”** Ruaridh Nicol, Holmes Miller



### Ruaridh Nicol Holmes Miller

Ruaridh Nicol is an Associate at Holmes Miller.

#### Project overview and context

Located 10 km northwest of Glasgow in West Dunbartonshire, Faifley has a strong local identity and limited in-and-out commuting, making education and community services central to daily life. Of three sites considered, St Joseph’s Primary was selected for its integration with Faifley Knowes woodland, which provides existing pedestrian routes, aligning with 20-minute neighbourhood principles.

The new 6,000 m<sup>2</sup> campus consolidates two primary schools (denominational and non-denominational), two Early Learning and Childcare Centres (ELCC), Additional Support Needs (ASN) facilities, community spaces, and a public library. These facilities were previously housed in several ageing buildings across Faifley.

The ambition was the creation of a new community asset to strengthen identity, efficiency, and accessibility, while bringing together sustainable design and technical rigour. The campus meets Passivhaus standards and the Net Zero Public Sector Buildings (NZPSBS) targets.

#### Site challenges and opportunities

The site presented several challenges, including the inefficient form of the existing school and significant level changes due to its position within a landscape dip. A tandem build approach allowed the new building to be carefully positioned to improve accessibility, create clear routes into the site, and maximise connections with surrounding green spaces. The site’s 45-degree rotation complicated traditional Passivhaus orientation, while nearby residential properties required careful consideration

of scale and overlooking. In response, the design adopts a fragmented form rather than a single dominant mass.

#### Conceptual identity

A key design concept draws on Faifley’s Cochno Stone, a significant example of prehistoric rock art with cup-and-ring carvings, and an important community symbol used in local education and cultural events. The design responds to the stone’s textures and geometry, informing both the external material palette and internal design language. This is most evident in the double-height games hall, where cup-and-ring markings are incorporated, with the theme continuing through landscape design elements, amphitheatre forms, graphics, wayfinding, signage, and interior finishes.

#### Masterplanning

The campus is organised around a landscaped plaza that descends from Faifley Road to the main entrance, forming a clear and welcoming arrival sequence. Community facilities sit to the north of the site for easy out-of-hours access, while education spaces wrap the southern and eastern edges, creating a buffer to neighbouring housing and strengthening connections to the woodland.

Outdoor space was central to the brief, responding both to educational needs and biodiversity ambitions. The project moves away from traditional “sea of hardstanding” school environments, instead integrating green learning spaces, ecological enhancement, and roof landscaping. Demolition of the old school will unlock further landscape improvements, reinforcing long-term community value.

#### Spatial organisation

Internally, the major challenge was combining seven facilities into one building while maintaining clarity, efficiency and identity. A clear organisational diagram

## Case Study 02 Faifley Community Campus

was established early and was rigorously maintained throughout development. Community facilities including the library, meeting rooms, and shared spaces are located the heart of the building at ground level. Early Learning and Childcare facilities occupy a long, predominantly single-storey wing, positioned carefully to minimise scale impacts on adjacent housing. A two-storey games hall anchors the plan.

Space efficiency was a key priority, with stakeholder input revealing opportunities to re-think traditional adjacencies, such as relocating the parents' room to a shared position beside the library, allowing dual use throughout the day. This approach reduced under-utilised areas and improved overall operational efficiency.

At upper levels, the two primary schools are arranged on either side of a central shared zone, balancing identity with shared dining, flexible learning, and collaboration. Carefully positioned circulation cores and service zones support the deep-plan layout, while a stepped central void draws natural light into the building and reinforces spatial legibility.

### Learning environments and design benefits

The educational model is based on activity-led learning, with large teaching areas broken down into a variety of smaller, flexible zones to support pedagogical diversity while addressing Passivhaus constraints, such as balancing daylight access with controlled glazing ratios.

Instead of extensive floor-to-ceiling glazing, which can increase overheating risk, internal amphitheatre steps and raised seating areas bring users closer to windows, maintaining visual connection with the outdoors. Quieter, more enclosed spaces are placed deeper within the plan, turning daylight limitations into a functional advantage. External terraces on all levels provide direct outdoor access without returning to ground level – an important response

to the constrained site and the council's strong educational driver.

### Passivhaus delivery and lessons learnt

Faifley Community Campus represents a significant achievement in delivering Passivhaus standards at a large scale. Success was enabled by close collaboration between client, contractor, design team, and supply chain, beginning with extensive full-scale mock-ups and early testing.

Key lessons emerged around thermal bridging, airtightness interfaces, substructure membranes, window taping, and terrace detailing. Early testing revealed that ground workers had underestimated their role in airtightness. This allowed corrective measures to be embedded into site practice early, avoiding delays, defects, and cost impacts later in the project. Sequencing and system-specific detailing were critical, with large-scale test rigs helping operatives understand nuances in wall build-ups and adapt their installation methods.

The project achieved an impressive airtightness result of  $0.474 \text{ m}^3/(\text{h}\cdot\text{m}^2)$ , outperforming the Passivhaus requirement of 0.6. Post-completion analysis suggested that future projects could safely target even tighter benchmarks, enabling reductions in insulation thickness and embodied carbon. Stress-testing of PHPP data also showed that orientation had less impact than expected, with performance effectively managed through glazing control, solar shading, and terrace design, offering valuable lessons for future projects.

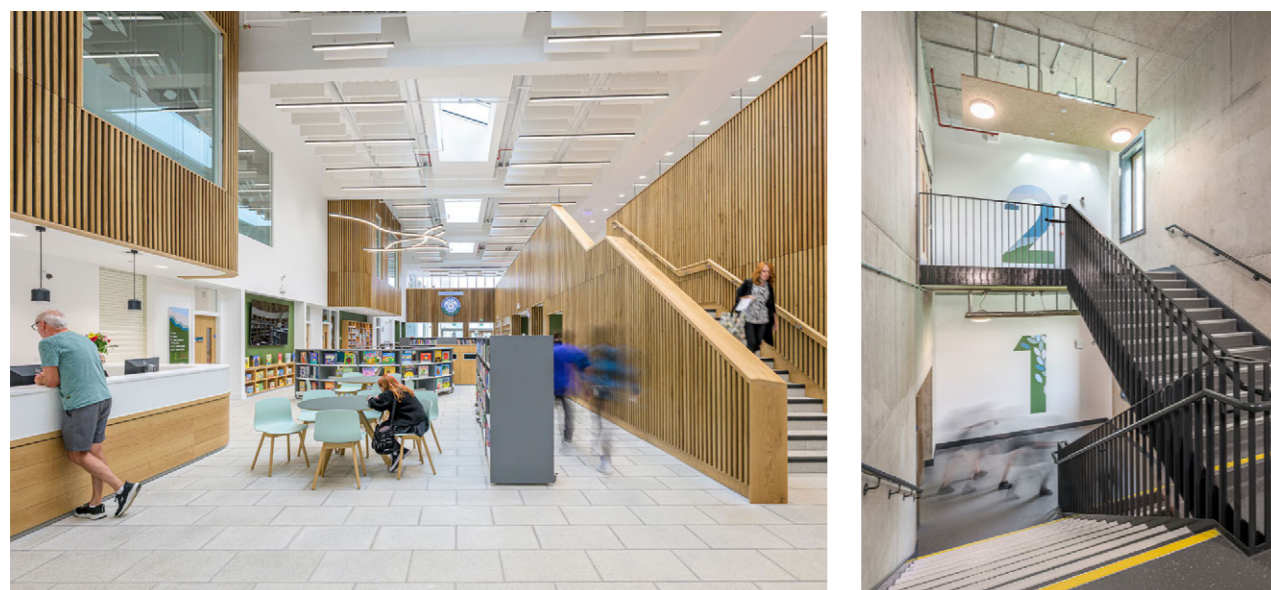


# Case Study 03

## Drumgeith Community Campus and Greenfield Academy

**“The building was designed with community at its heart, ensuring high-quality provision meets the needs of everyone. Central to this is removing barriers of background, ability, or circumstance. It is accessible throughout the day and every day of the week.”**

Gordon Laidlaw, Dundee City Council



**Gordon Laidlaw**  
Dundee City Council  
**Steven Coulson**  
Holmes Miller

Gordon Laidlaw is a Quality Improvement Education Officer at Dundee City Council. Steven Coulson is an Associate at Holmes Miller.

### The context

Drumgeith Community Campus and Greenfield Academy replace two schools originally constructed in the 1970s, both of which had significantly aged. The new site was chosen for its location – equidistant from the two former schools – as well as its capacity to support the wider community.

The new campus accommodates a complex range of requirements, designed to serve 1,880 pupils, including around 100 with Additional Support Needs (ASN). In addition to core educational spaces, the school incorporates a community library, leisure facilities, and extensive external sports provision, including synthetic and grass pitches, multi-use games areas, and a pump track.

### Site and building form

The arboreal characteristics of the site strongly influenced the design approach, with efforts made to retain as many mature trees as possible. A cycling route and a burn run along the lower edge of the site.

The design team organised the building into distinct blocks based on function.

- The teaching block houses standard classrooms arranged in a stacked, energy-efficient three-storey layout, with integrated learning plazas, lightwells, and support spaces.
- The sports and leisure block accommodates

- larger spaces such as games halls, dining areas, the library, and non-standard classrooms.
- The ASN block is fully integrated into the campus, supporting a range of additional support needs.
- An atrium including the shared library, café and reception forms the heart of the building, bridging the community and the pupil services.

The resulting U-shaped form is arranged around a central courtyard which acts as a focal point for the school community.

### Community theme

The school was conceived as a shared civic asset, with the community at its heart. From the outset, the project was driven by principles of inclusion and accessibility, ensuring that the facilities can be used throughout the day and across the week by a wide range of users.

Extensive collaboration between staff at Braeview Academy and Craigie High School ensured both school identities were embedded in Greenfield Academy, with the schools working together to agree shared values, routines and supports. Careful preparation and engagement enabled young people, staff and the wider community to be brought together positively under a shared new identity.

Through the brief and design development, the team considered active travel and 20min neighbourhoods, multigenerational design and community experiences. The aim was to offer meaningful opportunities to everyone through the day.

Shared spaces are central to the design, with the community library and reception accessible to students and locals alike. Sports facilities, including badminton courts and the gymnasium, can also be booked by the community, making the building an investment for everyone. The library acts as the hub, connecting visitors to other facilities such as the café, challenging the conventional idea of schools as closed, fortress-like spaces.

## Case Study 03 Drumgeith Community Campus and Greenfield Academy

### Natural materials

Exposure to nature has been shown to have a calming effect, and the design sought to capture this quality by incorporating organic forms, patterns, materials and natural light wherever possible. At the same time, several design decisions were made to respond to the surrounding natural landscape, drawing inspiration from the burn, hills, and foliage.

- Wayfinding graphics, door signs, and stairwell signage all feature nature-inspired patterns and tones creating a subtle connection to the natural environment.
- Timber finishes were chosen to bring warmth, texture and a connection to nature into key spaces. Oak battens were used in the library for their tactile quality and excellent acoustic properties. This was essential, as the area doubles as the entrance, reception, and community space. Recycled wood fibre ceiling tiles, oak veneer ceiling planks and perforated timber panels are also used throughout the building.
- The colour palette is muted and limited, using primarily soft greens. Furniture pieces are carefully selected to add pops of colour for visual interest.

**“Users reported a calm, purposeful, and engaging ethos around the building, which is particularly significant when bringing 1400 young people, staff, and community partners under one roof.”** Gordon Laidlaw, Dundee City Council

### Sustainability goals

Sustainability was a key priority for this project. Aiming for the highest sustainability goals is a genuine necessity in response to the changing climate, and the team was reminded of this when at the start of the project, a major storm hit the area. Early flood modelling and consultation had ensured the site was engineered to withstand severe storms and the design team leveraged the site’s natural taper to their advantage when positioning the building – this meant that the building emerged undamaged.

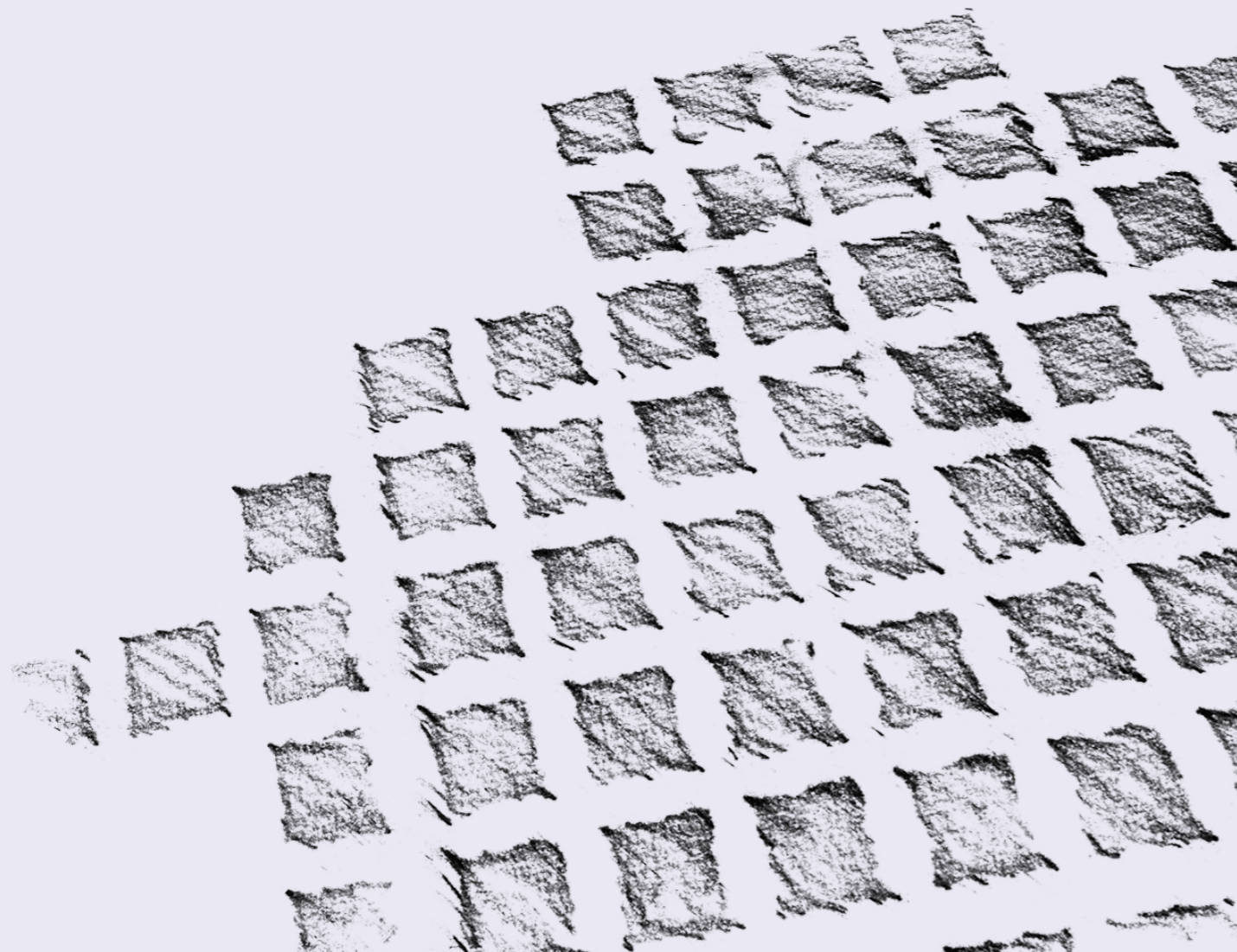
Passivhaus was used as the core strategy to deliver LEIP energy compliance targets. Airtightness was a major focus, with the contractor supply chain playing a critical role in its delivery. Early identification from the contractors of potential air gaps caused by the steel galvanising process allowed the team to address the issue before it became a problem. The school was built in two halves: a concrete-framed classroom block for shorter spans and a steel-framed sports block for longer spans. Interestingly, the contractor noted that although concrete construction took longer, it made achieving airtightness easier.

Passivhaus buildings retain heat efficiently, which can increase the risk of overheating. Fenestration and glazing percentages were carefully calculated to mitigate the risk, with window sizes slightly adjusted across facades to balance solar gains.

Achieving the energy targets required careful attention across all aspects of the project. The community campus model added further complexity compared to traditional schools, as its extended operational hours meant energy usage was less predictable. The technical design team was responsible for achieving two-thirds of the target, with the remaining third to be addressed only after the building was complete. This made close collaboration with the council essential to ensure the overall energy goals were successfully met.



# Further support



## Further support

As well as a forum for Local Authorities to join together, the Shared Learning Events are designed to complement support that is available on any aspect of the LEIP, from SFT's Learning Estate Infrastructure Team and wider stakeholders as appropriate. For relevant contacts at SFT and A&DS please see below;

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