

PICK EVERARD

Working with Local Authorities in the development of School Programmes

SPACES Study Day – 20 June 2019, De Montfort University, Leicester

Delivering complete consultancy services across the built environment



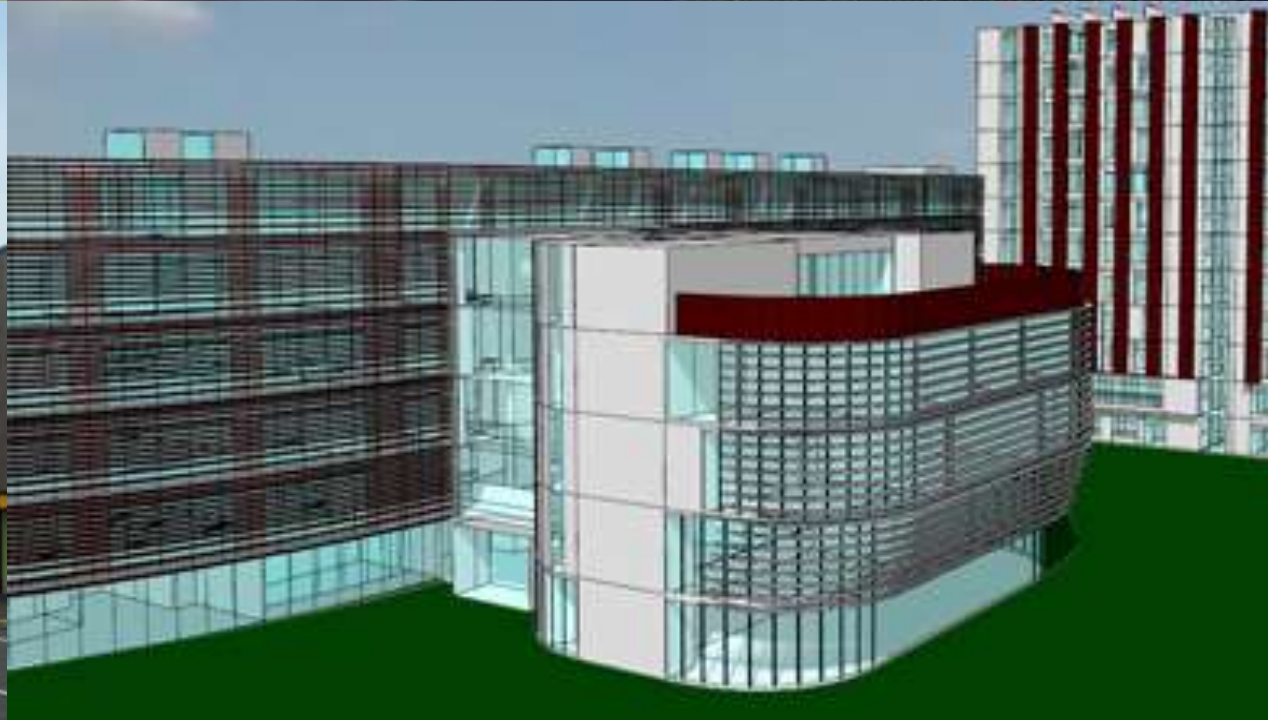


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PhD - De Montfort University

Lead Thermal Modelling Engineer for the Hugh Aston Building, DMU



NEWS

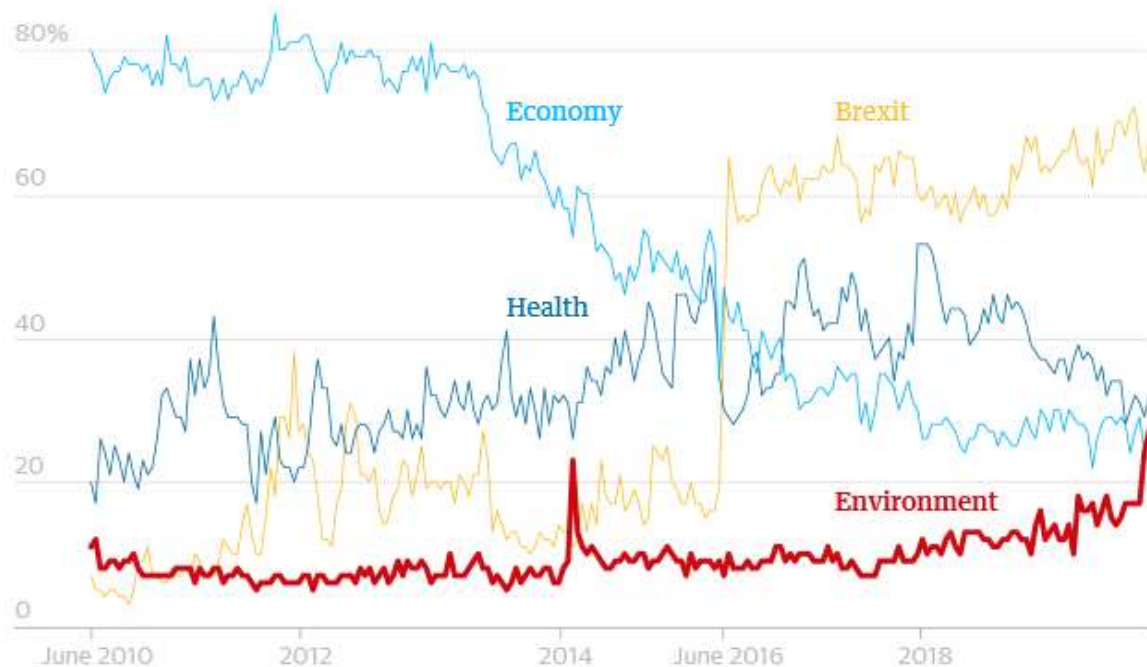
[Home](#)[UK](#)[World](#)[Business](#)[Politics](#)[Tech](#)[Science](#)[Health](#)[Family & Education](#)[Science & Environment](#)

Climate change: UK government to commit to 2050 target

Young people to advise UK on hitting net zero emissions by 2050

Thirty people aged 15-24 will assess how commitment by Theresa May should be met

A quarter of Britons say the environment is one of the three most important issues facing the country



Guardian graphic. Source: YouGov.

Sustainability Themes



BIODIVERSITY



BUILDINGS



CLIMATE



COMMUNITY



ENERGY



FINANCE



FOOD



HEALTH



LAND



MATERIALS



PROCUREMENT



TRANSPORTATION



WASTE



WATER



WELLBEING

Sustainable schools delivery programme needs

- Schools that:
 - meet the educational requirements
 - building users, staff and FM know how to use, operate and maintain efficiently
 - demonstrate sustainability and efficiency in operation
 - are based on standard designs that meet construction and operational targets
 - are built according to programme
 - achieve a demonstrable sustainable performance in design, construction and operation

Buckinghamshire County Council Programme Strategic Outcomes

- Cost Savings
- Time and Efficiency Gains
- Improved Quality
- Process Improvement
- Enhanced Controls
- Ease of operation



How does **Sustainable Performance** deliver the Strategic Outcomes?



Cost saving

Reduction in whole life costs



Time saving

Efficient handover and operation



Improved quality

Comfortable, efficient, adaptable and resilient buildings



Enhanced Controls

Improve building users satisfaction



Process Improvement

Better teaching and learning environments



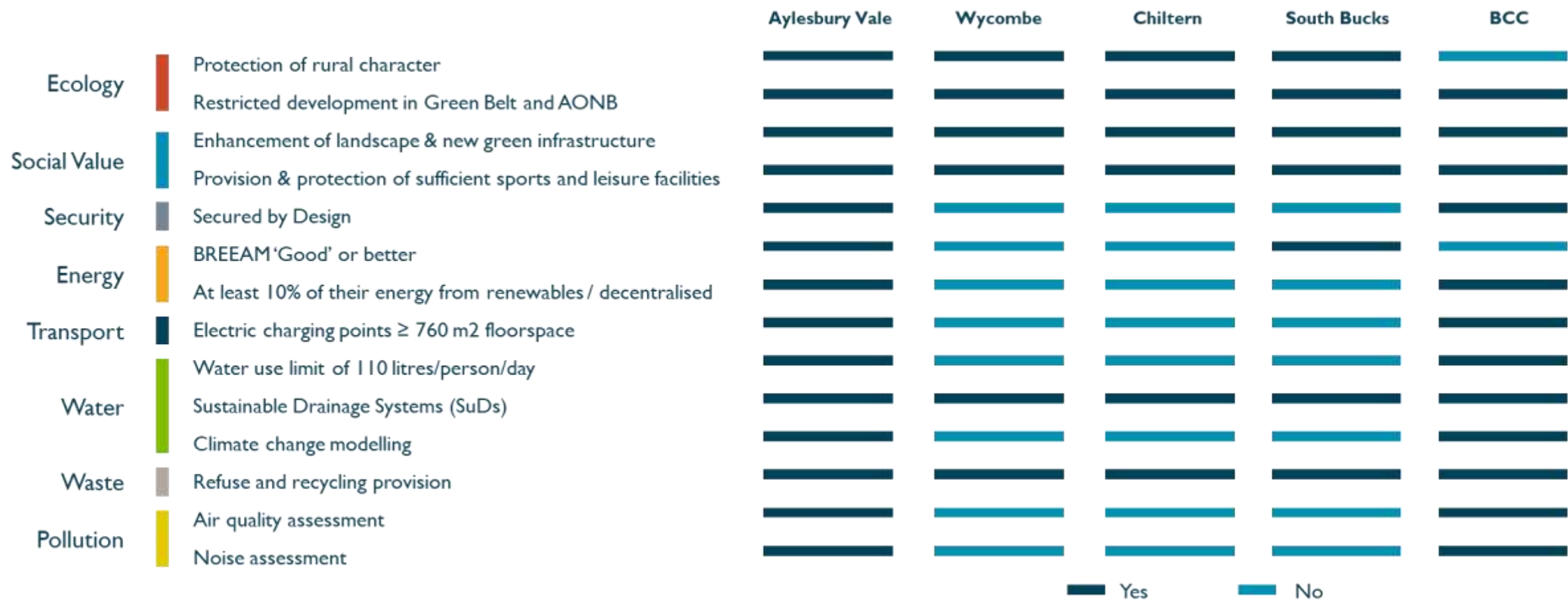
Ease of operation

Greater involvement of building operators throughout design & construction

Buckinghamshire County Council – Sustainability Review Process

1. Review and map Local Authority's current sustainability requirements
2. Identify any gaps / updates required
3. Adapt and develop Sustainability Strategy suitable for the Schools Delivery Programme
4. Develop an Implementation Timeline for Sustainability at individual project level

Buckinghamshire District Current Sustainability Requirements



BCC Sustainability Focus Areas

Through its Sustainability Policy Schools Delivery Programme BCC aims to:

1. Energy Use
2. Transport and Travel
3. Health and Wellbeing
4. Land and Nature
5. Sustainable Materials
6. Sustainable Water





	Cost saving	Time saving	Improved quality	Ease of Operation	Process Improvement	Enhanced Control
Energy	Prioritise passive design solutions & energy hierarchy to ensure best practice approach & unnecessary expenses are avoided	15 % improvement over BR Part L2A 2013 - to guide design team towards energy-saving through the onset of design	Low Carbon technologies to further drive carbon reduction	Be Seen - energy monitoring tools and systems for optimal energy consumption during operation	Using BCC Sustainability Plan for New School Buildings to set sustainability aspirations, targets and processes from RIBA Stage 0	Thermal modelling to inform passive design optimal HVAC operation.
	Switch off weekends to drive carbon and cost savings during operation	HVAC and lighting controls to facilitate greater decentralised energy use and quicker operation	Specified cap on primary energy consumption of building that is addressed at design stage	Soft Landings ensures performance gap is addressed and instructions are consistent all the way down to building users	Planned lessons learnt workshop to inform the project and perform better	Sustainability outline for every project & procurement evaluation criteria in BCC tender - Council has a greater understanding and control of energy use potential and supply chain impacts
			Post-occupancy evaluation helps building users and provides lessons learned to future projects	Updates and input from all relevant stakeholders into O&M manual Building User Guide		BMS/BAS provides enhanced control of HVAC, fire and security systems

Energy

- Sustainability Champion nominated at RIBA Stage 1
- Sustainability Plan for New School Buildings to monitor sustainability progress
- 15% improvement on CO2 emissions over Part L2A 2013
- 5% should be achieved through passive design and building fabric
- Soft Landings and CIBSE TM54 where area larger than 1000 m2
- Monitoring and reporting of energy use and CO2 emissions
- Building User Guides
- Low and Zero Carbon Technologies preference for PV, solar hot water, air source heat pumps, wind turbines



Health & Well-Being

- Integrated with social value to local community
- Sustainable means of school transport
- Relevant school (e.g. sports) facilities
- Security specialist during early stages of design (RIBA Stage 2)
- Noise and external air quality surveys
- Compliance with BB101 and in principle with CBDM

	Cost saving	Time saving	Improved quality	Ease of Operation	Process Improvement	Enhanced Control
Health and Wellbeing	Inclusive design that connects communities and provides support for all students and staff	Design out crime means that safety is considered from the onset	Indoor and outdoor pollution should be considered & mitigated - noise, light, smell, fumes, vibration or other (incl smoke, soot, ash, dust and grit)	Joint provision and dual use of community facilities where practicable, particularly the use of educational facilities for recreation purposes	The Contractor to be registered with Considerate Constructors scheme and aspire to achieve a score above 40 with a minimum 35 which results in better environmental impact and residents' wellbeing	Sustainability Champion to complete Health and Equalities Impact Assessment (HEIA) no later than RIBA Stage 2 and liaise with Social Value Lead to ensure positive social and environmental impacts on area residents & school building users are maximised.
	Thermal comfort, good lighting, fresh air and good acoustics result in less illness from staff and students	Healthy environment and design should lead to healthy initiatives during operation such as healthier food choices. Arrangements are in place throughout design to provide communal and educational space for good food.	Ensure daylighting standards meet BCC Thermal Modelling Strategy and indoor air quality is in line with ESFA to promote wellbeing and productivity	Simple how to guide for shard building users and contract staff to allow control of rooms (temperature, air and light)	Demonstrate Social Value has been delivered based on HEIA implementation and in line with Buckinghamshire Social Value Strategy and targets	BCC to commission Indoor Air Quality Plan no later than RIBA Stage 3 to minimise sources of air pollution



	Cost saving	Time saving	Improved quality	Ease of Operation	Process Improvement	Enhanced Control
Materials	A minimum of 85% of non-hazardous construction by volume (on-site and off-site manufacture/fabrication in a dedicated facility), demolition and excavation waste (where applicable) generated by the project have been diverted from landfill	Cost of repairing & maintenance demonstrated during design will inform requirements for whole of building life cycle – through Elemental LCC analysis commissioned by BCC	All timber to be FSC certified or equivalent to promote responsible sourcing of materials	BCC to commission Schools Resource Management Strategy to demonstrate principles of circular economy: building in layers; design out waste; design for disassembly; design for adaptability; re-used & recycled materials	Setting out any future uses (e.g. community access to sports field) or future reconfiguration (change of use) gives long-term consideration to the project	
	Building design and material selection to help reduce damage to the building's fabric or materials in case of accidental or malicious damage will reduce maintenance costs		Construction materials to be certified to BES 6001 to promote responsible sourcing and minimise carbon impact	Contractor to have certification in environmental management ISO14001 or similar ensures best practice operation during construction	Schools Sustainable procurement plan to guide material efficiency activities throughout the design and construction of the project keeps everyone accountable and monitors positive impact	BCC Schools Sustainable procurement plan that identifies risks and opportunities as early as RIBA Stage 0 sets out sustainable aspirations for the whole of the project
	Monitoring of embodied carbon in construction materials will help overall carbon reduction of a school building and save on additional measures required to meet carbon reduction over Part L (PV, heat pumps, etc.)		Main building elements, i.e. external & internal walls, roof, floor, etc. to obtain an A rating of the BRE Green Guide - high quality, sustainable materials, lower carbon emissions and ethical practices			

Materials

- Construction waste diverted from landfill targets
- Monitoring of embodied carbon in construction materials
- Elemental LCC analysis
- Construction materials certified to BES 6001 targets
- Schools Resource Management Strategy to demonstrate principles of circular economy
- Contractor to be ISO14001 certified
- Main building elements to be A rated in the BRE Green Guide
- Promote use of Life Cycle Analysis

Timeline

BCC Sustainability Timeline for a Typical Project

RIBA Work Stage		Sustainability Checkpoints	Guidance Notes
Strategic Definition	0	Strategic Brief	<ul style="list-style-type: none"> • Strategic sustainability review of BCC area-specific social and environmental needs has been carried out, including size and structure of new facilities & reuse of existing facilities, building components or materials.
	1	Initial Project Brief	<ul style="list-style-type: none"> • Confirm that formal sustainability targets are stated in the Initial Project Brief. • Confirm that environmental requirements, building lifespan and future climate parameters are stated in the Initial Project Brief. • Have early stage consultations, surveys or monitoring been undertaken as necessary to meet sustainability criteria or assessment procedures? • Check that the principles of the Handover Strategy and post-completion services are included in each party's Schedule of Services. • Confirm that the Site Waste Management Plan has been implemented.

Timeline

ENERGY	TARGETS & MEASURES	APPLICABLE TO PROJECT	RIBA STAGE	LEAD	START DATE	END DATE	STATUS
GOAL To reduce energy use and carbon emissions through design. To monitoring energy use and ensure operation indicators match design targets.	Set up a Sustainability Tracker Document to evidence how minimum standards will be met & updated at each RIBA stage	Yes	1	<i>To be agreed</i>	<i>To be agreed</i>	<i>To be agreed</i>	Not started
	Lessons learned workshop with design team and/or facilities management team from previous BCC schools project to review bad and good strategies of the past.	Yes	1				Completed
	Renewables & LZC report	Yes	2				Aborted
	Demonstrate incorporation of passive carbon reduction techniques such as exposed thermal mass, solar shading and night time cooling should be used to avoid A/C, with emphasis on natural ventilation.	Yes	3				In progress
	BRUKL report is provided to Engineering Services.	Yes	3				On hold
	Achieve at least a 15% improvement on Building Regulations from energy efficiency as a reduction measure of total resulting CO2 emissions	Yes	3				
	The building's primary energy consumption is no greater than _	Yes	3				
	The building's heating and cooling energy demand is _	Yes	3				
	The project team to develop a template for a simple Building User Guide that shall be drafted by the design team and completed by contractor. The guide to be handed over on Completion and will be ready to use before building occupation. The guide shall include clear information on the use of controls & additional sustainability information of use / interest to building users.	Yes	4				

One Planet Living

	Health and happiness	Encouraging active, social, meaningful lives to promote good health and wellbeing
	Equity and local economy	Creating safe, equitable places to live and work which support local prosperity and international fair trade
	Culture and community	Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living
	Land and nature	Protecting and restoring land for the benefit of people and wildlife
	Sustainable water	Using water efficiently, protecting local water resources and reducing flooding and drought
	Local and sustainable food	Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein
	Travel and transport	Reducing the need to travel, encouraging walking, cycling and low carbon transport
	Materials and products	Using materials from sustainable sources and promoting products which help people reduce consumption.
	Zero waste	Reducing consumption, re-using and recycling to achieve zero waste and zero pollution
	Zero carbon energy	Making buildings and manufacturing energy efficient and supplying all energy with renewables

- Shape client's policy
- 10 representative principles
- One Planet Action Plan
- Benchmarking Exercise Action Plan Policy
- Progress Monitoring Tool



Success project for the first client – South Thames Colleges Group




One Planet Living - Current Mapping

SSTG

Benchmarking Schedule

Category	Action	Current Status				Difficulty			Carshalton College	Kingston College	Wandsworth and Tooting College	Merton College
		Fully Completed	Partially Completed	Not Completed	Will be completed before deadline	Low	Medium	High				
	Health and Happiness											
	Health awareness campaigns Run regular workshops for staff and students on common health issues such as sexual health, allergies, smoking, personal safety, substance misuse, mental health, excessive fast food consumption, excessive sugar intake.		✓		✗	✓			Fitness As You Go - available gym, swimming pool and sauna	Yes, workshops; freshly cooked meals and salads	Tooting - no. Wandsworth - free gym membership	Healthy food options - not advertised
	Run regular workshops on common health problems like sexual health, allergies, excessive fast food consumption, excessive sugar intake and diabetes, smoking, etc.		✓		✗		✓		Not that I have seen I'm afraid	student support runs these workshops	yes, via Enrichment	Yes thee are campaigns during the academic year for sexual health amongst others
	Mental health support Ensure students and staff have support and confidence to accommodate any mental health issues by professionally qualified counsellors and / or therapists.		✓		✓	✓			as part of student support	student engagement advisors	DSA allowance for undergraduate learners	DSA allowance for undergraduate learners
	Wellbeing support Encourage mindful and physical activities for students and staff - fitness, running, hiking, yoga, pilates, meditation.		✓		✓	✓			I do believe there are student union groups that organise activities in conjunction with staff members. Yoga and pilates classes for staff	yes	yes	I do believe there are student union groups that organise activities in conjunction with staff members


One Planet Living - Current Mapping

Category	Action	Time Frame			Completion Progress				
		S	M	L	Carshalton College	Kingston College	Wandsworth College	Tooting College	Merton College
 Health and Happiness									
	Health awareness campaigns Run regular workshops for staff and students on common health issues such as sexual health, allergies, smoking, personal safety, substance misuse, mental health, excessive fast food consumption, excessive sugar intake.	■			In progress	Yes	In progress		Yes
	Mental health support Ensure students and staff have support and confidence to accommodate any mental health issues by professionally qualified counsellors and / or therapists.	■				Yes			Yes
	Wellbeing support Encourage mindful and physical activities for students and staff - fitness, running, hiking, yoga, pilates, meditation.	■				In progress			
	No Substance Abuse Policy Implement a No Substance Abuse Policy is fully adhered to and STCG grounds are monitored for any non-permitted activities. Regularly provide contact information to students and staff should they require to report a none compliance.	■			Yes			In progress	Yes
	Accommodating food allergies Ensure food allergies and food intolerances are accommodated across STCG. Gluten-free, dairy-free, nut-free options are made available where possible.	■				Yes		Yes	
	Welfare survey Hold annual surveys to ensure staff and students are satisfied with working and studying conditions. If appropriate, STCG participants will be updated on recall numbers and made aware of outcome. This is to support the sense of community and reward participation.	■			Yes				
	Outdoor community areas Provision of outdoor picnic and community spaces for students and staff to encourage communication and networking.			■			Yes		In progress

One Planet Living – Action Plan

SSTG

Summary Action Plan

Category	Action	Time Frame			Cost	Lead	Measurement Criteria	Success Criteria	Progress Update
		S	M	L					
	Health and Happiness								
	Health awareness campaigns Run regular workshops for staff and students on common health issues such as sexual health, allergies, smoking, personal safety, substance misuse, mental health, excessive fast food consumption, excessive sugar intake.	■			£	Student Services / HR / Wellbeing Matrix Group	<ul style="list-style-type: none"> • Regular nutrition workshops are available. • Regular allergies workshops are available. • Regular mental health workshops are available. • Regular sexual health workshops are available. • Regular personal safety workshops are available. • Regular substance misuse workshops are available. • Provisions are made for students and staff with disabilities to attend. 	★ Regular health workshops are organised across STCG. ★ Students and staff can participate in all events and workshops across STCG.	
	Mental health support Ensure students and staff have support and confidence to accommodate any mental health issues by professionally qualified counsellors and / or therapists.	■			£ - ££	Student Services / HR / Wellbeing Matrix Group	<ul style="list-style-type: none"> • Professionally qualified counsellors and therapists are working across STCG. • A dedicated private appointment area is available to use for staff and students. • Mental health support is widely advertised and made available to all students and staff across STCG. • There is an easily accessible system to make appointments for staff and students. • A confidential mental health support phone line is available for students and staff. • Clear instructions for crisis situations are regularly provided to staff and students. 	★ The welfare survey indicates satisfaction with mental health support across STCG. ★ Mental and physical disabilities are accommodated and supported across STCG.	

One Planet Living - Monitoring Plan

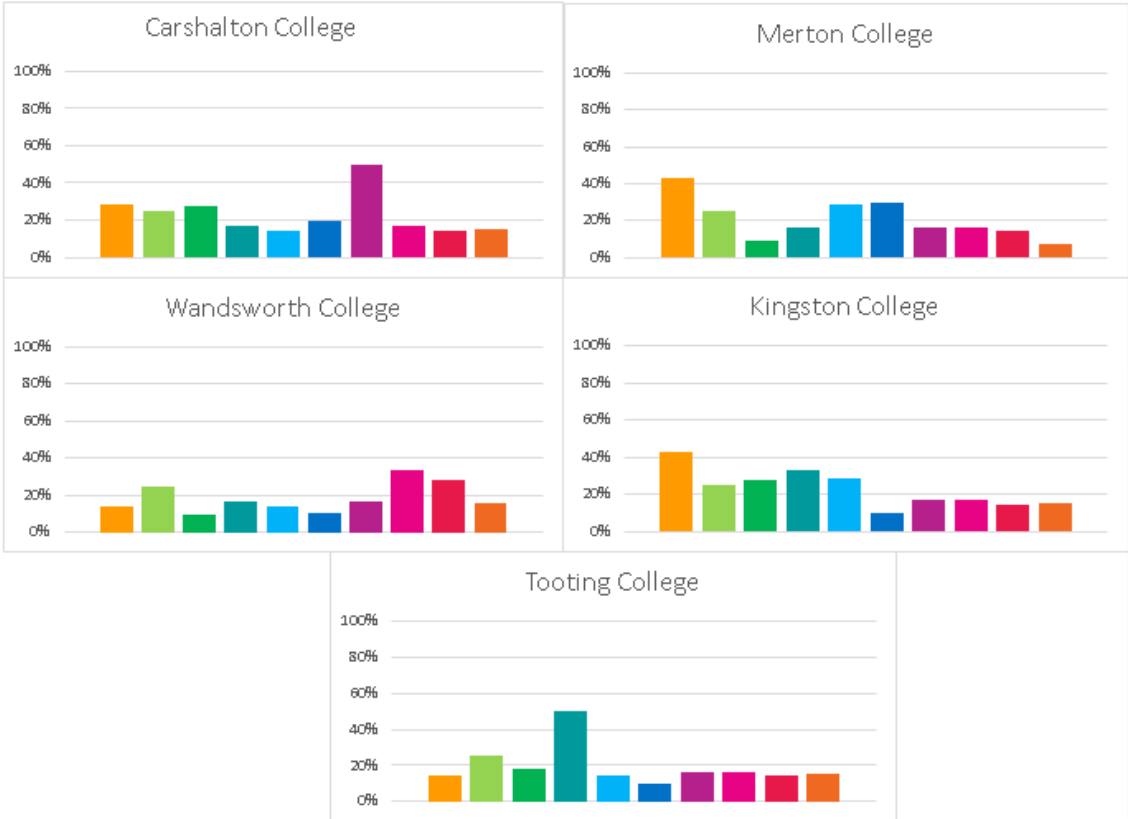
SOUTH THAMES COLLEGES GROUP

One Planet Action Plan - Monitoring Completion Progress

Key	Health and Wellbeing	Equity and Local Economy	Culture and Community	Land and Nature	Sustainable Water	Sustainable Food	Travel and Transport	Materials and Products	Zero Waste	Zero Carbon
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Individual College Progress - One Planet categories

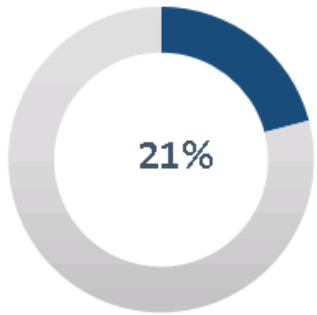
Overall STCG Progress across One Planet categories



OVERALL STCG PROGRESS



STCG-wide Sustainability Progress



ESFA Facilities Output Specification

- Generic Design Brief
- Annex 2C External fabric
- Annex 2E Daylight Electric Lighting
- Annex 2F Mechanical Services and PHE
- Annex 2H Energy
- Annex 2I Controls
- Building Performance Evaluation Methodology



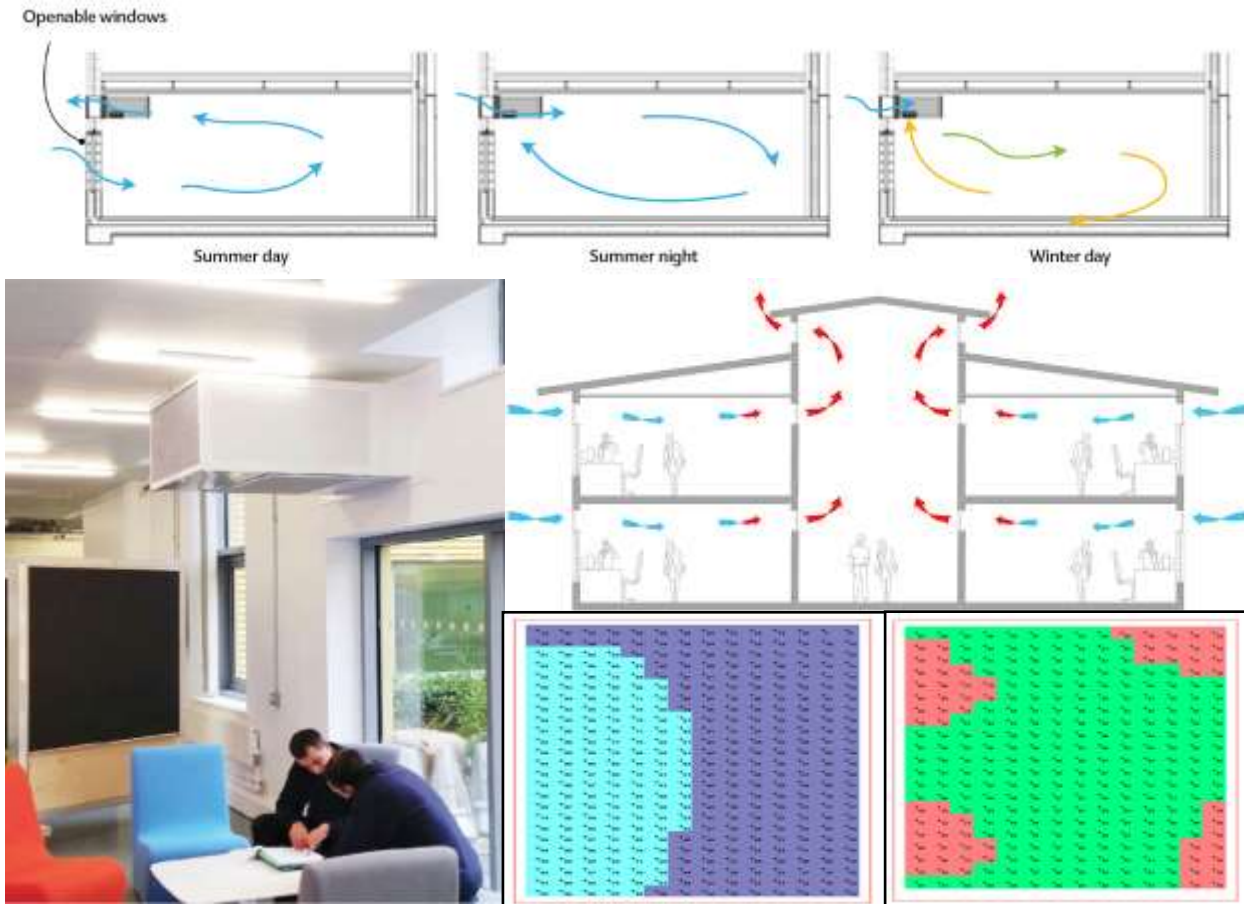
Output Specification

November 2017

For technical professionals involved in the design and construction of school premises

ESFA Facilities Output Specification

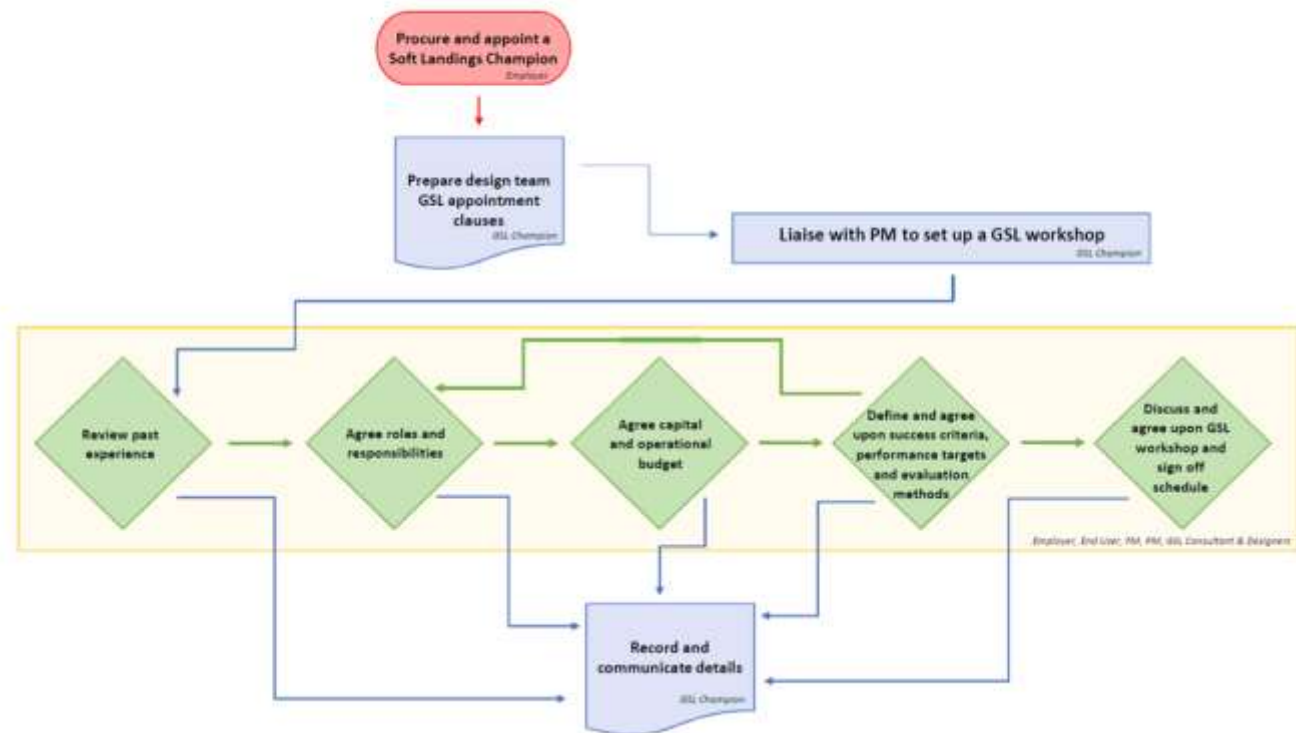
- External Fabric
- Internal Environmental Conditions
- Building Services
- Energy and Carbon
- Building Performance Evaluation



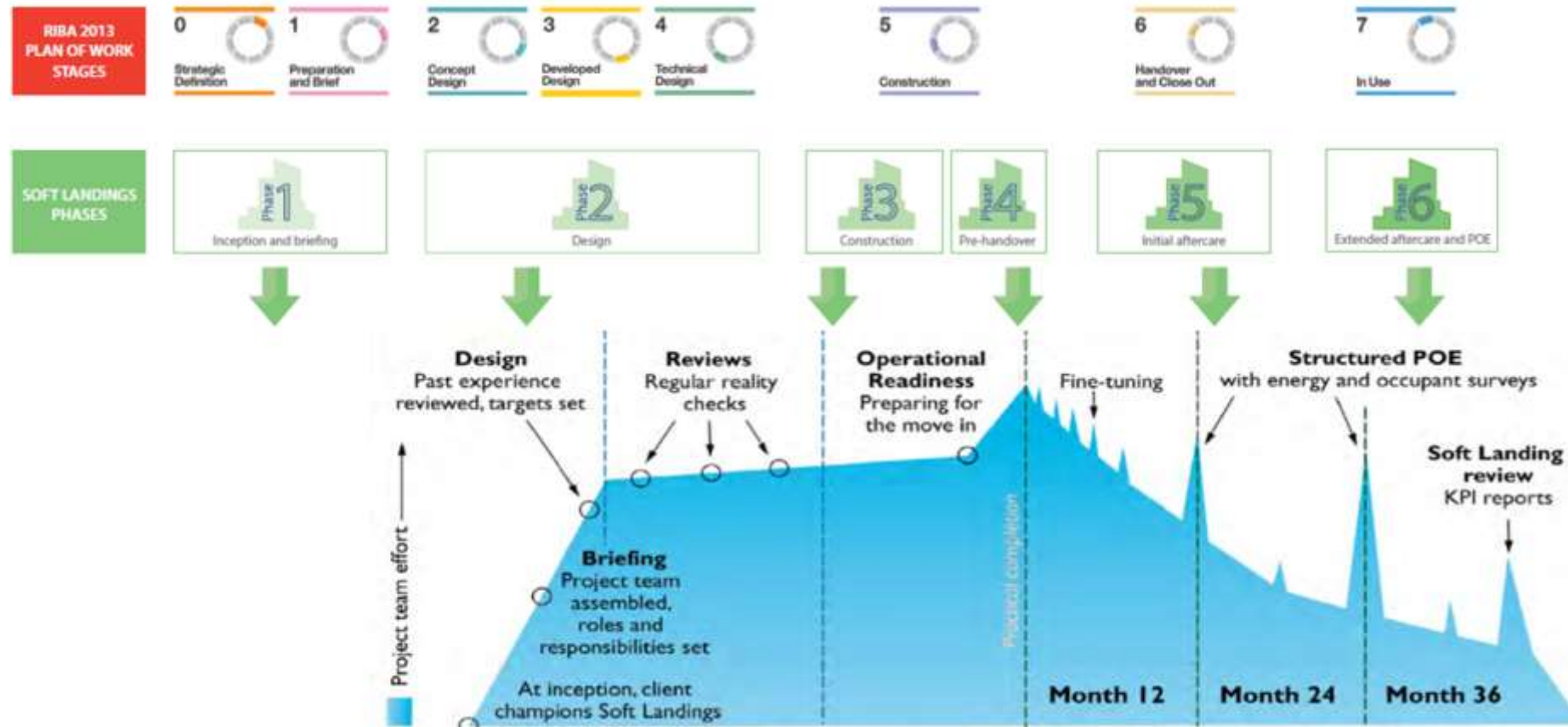
Soft Landings

- The purpose of GSL is to:
 - Optimise the operating performance within the operational budget
 - Align the operating performance with the required performance outcomes set at the start of the design and construction period.
- The Soft Landings Champion, as an Employer representative, to ensure:
 - Establish required performance outcomes and operational budget.
 - Plan for and monitor commissioning, training and handover of systems and facilities & asset management
 - Develop, agreed scope and procure Post Occupancy Evaluations

RIBA Stage 0 & I Process Map



Soft Landings Process



Recommendations

- Develop a specific Sustainability Policy and Strategy for the programme
- Decide on the formal use of BREEAM
- Identify what specific sustainability requirements (within or outside BREEAM) are mandatory
- Identify if any specific sustainability options are not to be sought
- Agree a consistent approach to sustainability planning requirements for the programme, including acceptable derogations
- Use the ESFA Facilities Output Specification as the basis for design and operation performance
- Undertake a consistent approach to building fabric, energy efficiency, renewable energy, controls
- Consider aspects from other sustainability and environmental accreditations (Ska, WELL, One Planet Living)
- Implement a Soft Landings approach and define Soft Landings clauses in designers' and contractors' EIRs
- Establish monitoring performance in operation

Links to other programme outputs

- Planning
- Land acquisition
- Programme Development
- Standard Specifications

Links to other programme outputs

- Construction Techniques
- Procurement Routes
- Common Data Environments
- Social Value

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