ASSOCIATION OF COLLEGES CHARITABLE TRUST

Blueprint

Creating a greener London – green skills for the future programme

April 2022 to July 2025

South Thames Colleges Group

LONDON SOUTH EAST COLLEGES

aoc.co.uk

Contents

Introduction

JP Morgan Chase Foundation Green Skills for the Future programme October 2022 - November 2025

Blueprint purpose and outcomes

This blueprint has been developed to draw on the findings from the pilot projects, demonstrating effective processes and procedures for establishing partnerships working to deliver green skills training in the homes and buildings sector. We are encouraging other organisations to use this blueprint in their own projects.

Green skills definition

Green skills are the specific knowledge, abilities and values needed to promote the reduction of negative environmental impact in the workplace.

Executive summary

Association of Colleges, in partnership with JP Morgan Chase Foundation, successfully launched and delivered the **Creating a Greener London – Sustainable Construction Skills** initiative. This pioneering programme provided eco-friendly construction training at a local level, directly addressing the growing demand for green skills in support of the UK's net zero targets.

Piloted at South Thames College Group and London South East Colleges, the project laid a strong foundation for wider implementation across London. It demonstrated how strategic partnerships between education providers and employers can effectively bridge skills gaps and create clear pathways into sustainable employment within the homes and buildings sector.

Key success factors

The project's success was underpinned by several critical factors:

- Inclusive access for learners from all backgrounds
- Curriculum integration of green skills at Level 2 and below
- Strong employer partnerships through co-designed training and placements
- Alignment with labour market needs, informed by real-time intelligence
- Robust supporting resources for staff and learners
- Knowledge sharing across institutions
- Collaborative delivery models tailored to local contexts.

Resources & progression pathways

A comprehensive suite of resources supported staff CPD and curriculum planning. These included:

- Teaching materials aligned with industry standards
- Technological updates and best practices
- A structured skills mapping tool showing clear progression from Level 2 upwards, helping learners and advisors visualise career pathways.

Find a full list of resources that can be adopted by colleges on page six of this blueprint.

Inclusive participation & curriculum innovation

The programme prioritised young people from lower socio-economic backgrounds through targeted outreach, flexible delivery, and tailored support services. Green skills were embedded into existing construction courses, ensuring learners developed a foundational understanding of sustainability before progressing to more specialised areas. You can find out about curriculum development and its impact on page nine of this blueprint.

Employer collaboration & industry alignment

Both colleges built strong partnerships with local employers, offering work placements, co-designed curricula, and clear employment pathways. This ensured training remained responsive to emerging green job opportunities, particularly in retrofitting and sustainable building practices. You can find out all the information on the project pilots partnership approach on page 11 of this document.

Knowledge sharing and sector collaboration

The project fostered a collaborative culture through:

- Cross-institution working groups to share best practices
- Joint CPD sessions for construction tutors
- Employer forums to ensure curriculum relevance
- Shared resource development to reduce duplication.

These efforts ensured consistent quality while allowing for local adaptation to meet the needs of diverse communities and employers across London.

Impact on skills gaps and social mobility

The initiative has already made a measurable impact on reducing green skills shortages in London's construction sector. It has developed a pipeline of workers trained in sustainable practices, retrofitting, and green technologies. Importantly, it has created meaningful progression and employment opportunities for disadvantaged learners, contributing to improved social mobility and supporting the Government's climate targets through targeted workforce development.

Evaluation & long-term impact

An independent evaluation by Chrysalis Research has tracked the project's progress from inception, capturing key short-term metrics such as:

- Learner enrolment from disadvantaged backgrounds
- Completion rates for green skills components
- Employer engagement and placement opportunities
- Tutor confidence in delivering sustainable content.

This data will also support a two-year longitudinal study to assess long-term outcomes, including:

- Increased employment in green construction roles
- Progression to higher-level sustainable construction courses
- Contributions to carbon reduction in London's built environment
- Improved social mobility for programme participants.

Conclusion

The programme has not only delivered immediate results in skills development and employment readiness but has also laid the groundwork for long-term impact on sustainability and inclusion in London's construction sector. Its success provides a scalable model for wider adoption across further education providers and employers, supporting a city-wide approach to sustainable construction training.

Phases of the project

The project was delivered in three distinct phases, each building on the last to ensure a structured and impactful rollout:

Phase 1 - Developing local collaborative partnerships and green skills planning (April 2023 – August 2023)

During the initial phase pilot projects formalised their partnership model and identified their approaches to embedding green skills into Level 2 construction courses.

Phase 2 - High quality CIAG on green skills and green jobs (September 2023 – December 2023)

To generate awareness and interest in skilled green jobs, pilot projects delivered a series of Careers Information, Advice and Guidance (CIAG) activities to cohorts of Level 1 and Level 2 construction students. This helped to build a stronger recognition of green jobs and highlighted the importance of learning these new green skills in the next phase of the programme.

Phase 3 - Co-design and delivery of green skills training to Level 2 students (January 2024 – June 2025)

The sustainable construction programme established a robust foundation for ongoing collaboration between educational institutions and industry employers, ensuring training relevance to real-world ecological challenges. Collaborative development between employers and college practitioners identified essential ecological competencies for modern construction, resulting in contextualised learning experiences.

Construction professionals delivered specialised sustainable training across multiple UK pilot locations, providing over 30 hours of ecological instruction per student. Each pilot site delivered a minimum of 15 green skills sessions, training at least 105 Level 2 construction students in practical sustainability applications.

The programme created lasting collaboration frameworks between industry and education, ensuring construction training continues to evolve with ecological best practices.

College resource toolkit

Below you'll find a diverse range of resources developed as part of the project. These materials are designed to support colleges and organisations interested in integrating green skills into their curriculum, offering practical insights and inspiration to guide their journey.

Resource type	Link
Resource directory The resource directory supports colleges when planning and delivering Green Skills for construction-related courses. The contents contain resources for staff to plan, deliver, and capture evidence of the knowledge, skills, and behaviour of the student journey. There is also a valuable planning tool for staff to plan their CPD for upskilling in Green Skills.	Link to resource directory
Delivery resources A variety of delivery resources have been created by our two pilot colleges, South Thames College Group and London South East Colleges, as a result of the project for organisations to use. There are resources by specific categories, such as buildings, the environment and careers. We also have a 10-session plan as an introduction to the green skills agenda. Resources include PowerPoints, handouts, question sheets and answer sheets.	Link to delivery resources
Skills matrixes The skills matrixes have been developed by the college pilot groups, with the support of their employer partners. They give a comprehensive overview of the opportunities for progression pathways from Level 2 onwards for Green Skills in the Construction Industry and form the basis of delivery in further phases of the project.	Link to skill matrixes
Case studies The pilot college groups have submitted case studies which detail activities, challenges, successes, and recommendations for successful local collaborative approaches to the delivery of green skills for green jobs. They have also created case studies showcasing the impact the project has had on their students.	Link to case studies
Webinars We have many webinars which have been delivered by the pilot colleges including sessions on innovative practices in CIAG for the delivery of construction green skills, Q&As, and resources for engaging students in eco-friendly education.	Links to webinars

Good practice and positive outcomes

The two pilot college groups have made significant progress in embedding sustainability into construction education, positioning themselves as leaders in preparing the workforce for a net zero future. Their achievements span curriculum innovation, industry recognition, environmental performance, and student engagement. Crucially, the project provided a focal point for partnership development and collaboration, enabling colleges to draw down external expertise to enrich the curriculum and share insights with the wider sector. This collaborative approach has strengthened relationships with industry and other providers, creating a platform for shared learning and innovation.

Recognition & awards

South Thames College was shortlisted in two prestigious categories for excellence in sustainable education and innovation in net zero training. The Curriculum Manager for Construction was also named a finalist, highlighting individual leadership in climate-focused education.
The wider College Group was also shortlisted, reflecting its strong institutional commitment to developing green skills across construction disciplines. These accolades collectively position the colleges as sector leaders in sustainable construction training.

Environmental impact

In June 2024, both colleges achieved **Platinum Net Zero Standard certification**, the highest level of environmental performance. Since the 2018/19 baseline, they have reduced carbon emissions by **53%**, thanks to systematic improvements in energy efficiency and renewable energy adoption.

Retrofit & green skills training

The colleges delivered comprehensive training programmes aligned with London's retrofit agenda. These equipped learners with practical skills in:

- Energy assessment and thermal performance evaluation
- Retrofit planning and building physics
- Heat loss calculations and energy performance certification.

Students gained hands-on experience with industry-standard tools and methodologies, preparing them for roles in the growing retrofit market.

Renewable technology expertise

Learners also developed technical skills in:

- Air and ground source heat pump installation and system design
- Solar thermal collector installation and integration
- Low-temperature heating systems, underfloor heating, and smart controls.

These capabilities are essential for decarbonising the UK's housing stock and meeting national climate targets.

The colleges also trained students in:

- Solar PV installation
- Battery storage systems
- Electric vehicle charging infrastructure.

Good practice and positive outcomes continued

These qualifications are vital for building a skilled workforce to support London and national net zero goals.

Student engagement & outcomes

Student feedback and engagement were strong:

- 87% reported learning "something" or "a lot" about green skills
- 78% expressed interest in solar installation careers
- 65% showed interest in retrofit roles.

Micro-credentials & upskilling

London South East Colleges delivered short, focused courses in retrofit, carbon reporting, and sustainability, aimed at upskilling staff. These courses covered:

- Whole-house retrofit planning
- Embodied carbon calculations
- Sustainability reporting frameworks.

With **298 of 473 STEM learners** enrolling in green skills micro-credentials, the college achieved a **63% participation rate**, reflecting successful integration of sustainability into core technical disciplines.

The project provided a focal point for changes to professional development focus and delivery, prompting staff to pursue specialist qualifications in emerging areas such as battery management and low-carbon technologies.

Strategic integration

A strategic framework is now in place, embedding sustainable principles across all construction courses. Dedicated resources support environmental practice understanding, and the colleges are now recognised as exemplar institutions in sustainable construction education. The project brought about real shifts in attitudes towards what the content of Level 2 should be, moving beyond general sustainability awareness to a focus on practical green skills. This shift has led to the development of hands-on training that equips learners with the capabilities needed to contribute meaningfully to the green economy.

Sustainable change

The project has brought about sustainable change, with the value of a two-year cycle clearly demonstrated. Colleges have used the initial phase to explore and adapt, and entered Year Two with stronger foundations, clearer progression pathways, and a more confident approach to delivering net zero education. This comprehensive approach has delivered measurable outcomes in carbon reduction, student engagement, and industry recognition—laying a strong foundation for continued excellence in preparing the construction workforce for net zero challenges.

Curriculum development and impact

In response to critical workforce shortages in renewable energy and sustainable technologies, pilot colleges have developed targeted programmes to equip learners with practical, industry-relevant skills. These initiatives are designed to meet immediate labour market needs while fostering long-term sustainability in education and employment.

Curriculum evolution and major developments

1. Expanded course offerings

Both **South Thames College Group (STCG)** and **London Southeast College Group (LSEC)** have introduced comprehensive qualifications in:

- **Renewable energy technologies**:
  - Air Source Heat Pumps (Intro & L3 Installation/Maintenance)
  - Solar PV Systems (Intro & L3 Installation)
  - Electric Vehicle Charging Infrastructure (L3 Design & Installation)
  - Domestic Energy Assessment
  - Climate Change and Natural Environment Awareness
  - Electric/Hybrid Vehicle Maintenance.
- **Building retrofit qualifications**:
  - Introduction to retrofit
  - Level 2 Award and Certificate in Retrofit
  - Energy and Sustainability Award.

2. Micro-credentials integration

Micro-credentials have been embedded across technical disciplines, offering flexible, bite-sized learning modules such as:

- **Introduction to carbon reporting** (Plumbing)
- **Introduction to retrofit** (Brickwork, Carpentry)
- **Introduction to sustainability** (Engineering, Electrical).

These were co-developed with over **280 partner organisations**, ensuring alignment with employer expectations and enhancing employability.

3. Strategic partnerships

Collaboration with the **Supply Chain Sustainability School (SCSS)** has:

- Validated course content
- Provided access to case studies and best practice guides
- Enabled equipment donations and work placements
- Supported staff upskilling and institutional sustainability.

Implementation guidance for other institutions

To replicate this model, institutions should:

1. **Conduct local skills gap analysis**: Identify regional shortages in green technology roles and tailor course offerings accordingly.
2. **Engage industry partners early**: Co-develop curriculum with employers to ensure relevance and secure resources (e.g., funding, placements, equipment).
3. **Embed micro-credentials strategically**: Integrate into existing programmes to enhance flexibility and allow learners to build personalised skill portfolios.

Curriculum development and impact continued

4. **Train and upskill staff**: Ensure delivery teams are equipped with sustainability knowledge through targeted CPD and micro-credentials.
5. **Use blended learning models**: Combine e-learning with hands-on workshops and webinars featuring industry experts to maximise accessibility and impact.
6. **Monitor and evaluate outcomes**: Establish frameworks to track employment outcomes, learner progression, and institutional sustainability metrics.

Sustainability and future-proofing

For upcoming students:

- Accessible learning: Free course models remove financial barriers, promoting inclusive education.
- Career pathways: Clear progression routes from micro-credentials to formal qualifications support lifelong learning.
- Real-world relevance: Courses are continuously updated with input from industry, ensuring students gain marketable skills.
- Environmental impact: Knowledge transfer from curriculum to campus operations has led to measurable improvements, such as:
  - STCG's 53% carbon emissions reduction since 2018/19
  - Platinum Net Zero Standard achieved in June 2024.

Institutional recognition

- Unlock Net Zero Awards 2025:
  - Climate Champion Power Award finalist (Curriculum Manager for Construction)
  - Skills & Training Award shortlisted (College Group).

Conclusion

The JP Morgan-supported curriculum transformation has created a replicable, scalable model for green skills education. By aligning with industry, embedding sustainability, and prioritising accessibility, these programmes are equipping students and institutions to lead in the transition to a low-carbon economy.

Careers information, advice and guidance

The two pilot colleges led a transformative approach to careers information, advice and guidance (CIAG) for construction students, with a strong emphasis on green skills and sustainable industry practices. Their work brought industry to life for learners and embedded real-world experiences into education, aligning with the evolving needs of the green construction sector.

Strategic vision and CIAG planning

The pilot colleges developed a shared vision for CIAG that aimed to:

- Make industry tangible for students through direct learning experiences
- Create a dual approach—bringing industry into the classroom and taking students out to live green construction sites
- Build symbiotic relationships with employers, where businesses could 'give back' through time, expertise, and work-placement opportunities
- Support the green construction supply chain by aligning training with real-world needs.

This strategy ensured that students were not only informed about green careers but actively engaged with them through meaningful, hands-on experiences.

Key activities and innovations

- Rolling CIAG programmes: designed and delivered by the pilot colleges, aligned with the Local London Green Jobs and Skills Partnership.
- Green skills events: hosted by the colleges to immerse students in practical applications of green construction and develop soft skills valued by employers.
- Career advantage programme: an employer-designed initiative delivered alongside students' main study programmes, equipping them with additional employability skills.
- Employer pledge card: over 50 employers committed to engagement through advisory boards, talks, apprenticeships, and site visits.
- Event participation:
  - Future Build (March 2024)
  - Digital Construction Week (April 2024)
  - Skills London (November 2024)
  - Local London and Mayoral Academy stands for CPD and outreach.

Stakeholder engagement

The pilot colleges worked closely with:

- Employer advisory boards
- Industry volunteers and apprentices
- Subject matter experts
- Association of Colleges.

These stakeholders contributed to curriculum design, delivered talks, hosted site visits, and supported work placements—all mapped to the Gatsby Benchmarks.

Careers information, advice and guidance continued

Student and staff engagement

- Induction and insight days: held at the start of each term to introduce green career pathways.
- Outreach activities: enabled students and staff to build networks and enhance learning.
- Green Careers week: a dedicated careers fair supporting the Mayor's initiative, with participation from 200+ students and staff.
- Skills scan surveys: captured baseline data for new construction students in September 2023.

Through their leadership and innovation, the two pilot colleges demonstrated how targeted, employer-led CIAG can bridge the gap between education and industry. Their collaborative efforts created a scalable model for green construction careers education—one that prepares students for the future workforce while supporting the sustainability goals of the sector.

Partnership approach

The pilot college groups built upon partnerships initially formed through the Strategic Development Fund (SDF) programme, which fostered a sustainable, locally driven approach to the flexible design and delivery of green skills training across London.
Through collaborative efforts, the colleges established a robust framework that aligned students' career aspirations with the urgent need to address construction skills gaps in the capital. Central to the programme's success was a strong culture of collaboration with both internal and external stakeholders, enabling comprehensive support for students entering the green construction sector.
Both college groups drew on their extensive experience in building meaningful partnerships with other colleges, employers, and local stakeholders. This enabled the successful delivery of impactful projects that benefited students and local communities alike.
Key to this success were strong links with local and national employers, who played an active role in curriculum design and development. Their contributions—via employer boards, sector skills councils, and industry specialists—ranged from producing resources and presentations to offering career information, advice, and guidance (CIAG). These efforts helped create clear progression pathways into the industry through T Levels, apprenticeships, and direct employment.

Stakeholder partnerships were instrumental in embedding the Gatsby Benchmarks through:

- Industry-led presentations and workshops
- Facilitated on-site visits to live construction projects
- Work experience placements aligned with green skills
- Practical demonstrations of sustainable construction techniques

Curriculum leads were supported by central project managers who worked closely with external stakeholders to ensure the effective integration of green skills into teaching and learning.
Students benefited from hands-on experience with cutting-edge sustainable construction methods, gaining practical insights into real-world applications. To address the most pressing skills shortages, the pilot colleges also developed strong relationships with local authorities and political leaders, maintaining regular engagement throughout the programme. Close collaboration with the Greater London Authority (GLA) and local employers ensured a coordinated approach to meeting industry needs.
Employers engaged with colleges through the Mayoral Construction Academy (MCA) Hub, with local development and regeneration sites offering valuable opportunities for outreach, site visits, and engagement with marketing suites. This triangulation of intelligence—gathered from industry-led employer boards—formed a robust framework for identifying and addressing skills gaps.
The partnerships spanned a wide range of sectors, including construction crafts, building services, and construction management, providing students with broad industry exposure.

Partnership approach continued

Key partners included:

Construction and building services
- Smith and Byford
- Jewel Group Ltd
- Quantum, BIM Academy
- Retrofit Academy
- Switched on London Ltd
- Mitie Ltd
- Electrical Contracting Ltd

Major developers and contractors
- Mace Group
- Knight Dragon
- The Engine House
- Wates Group
- Sapphire Balconies
- Peabody
- Berkeley Group

Education consortium
- Association of Colleges (AoC)
- University of Roehampton
- Building Research Establishment (BRE)

Industry bodies
- Energy Efficiency Association
- Building Development and Maintenance
- Local Skills Improvement Plan

Specialised centres
- Retrofit Careers Hub
- GLA Apprenticeship Advisory Group
- Mayoral Construction Academy

Programme achievements:
- Developed a sustainable model for green skills training delivery
- Bridged construction skills gaps across London
- Co-created curriculum with direct employer input
- Established clear pathways from education to employment
- Built lasting partnerships between education and industry

This programme clearly demonstrated how targeted educational partnerships can effectively address regional skills shortages while preparing students for careers in the rapidly growing green construction sector.

Case studies

Each pilot project has produced a case study from year one and year two of the project detailing activities, challenges, successes, and recommendations for successful local collaborative approaches to the delivery of green skills for green jobs. They have also created a case study showcasing the impact the project has had on their students.

Please find a link to the full catalogue of case studies here - case studies

Below you can view the year 2 case studies from South Thames College Group and London South East Colleges.

South Thames Colleges Group

LONDON SOUTH EAST COLLEGES

Project case study: South Thames College Group

Starting point

At the project's outset, the South Thames College Group had a broad curriculum offer across the construction trades but with no particular focus on green skills. Over the life of the project, the South Thames College Group have added discrete green construction courses to the Group's offer, including Level 3 Certificate in Domestic Energy Assessment; Level 3 Certificate for Retrofit Advisors; Level 3 Award in the Installation of Small Scale Solar Photovoltaic Systems; and an Introduction to Air Source Heat Pumps. In addition, STCG have integrated green skills more comprehensively into existing provision. A good example of such integration is the bolting on of the L2 Award in Understanding Retrofit to the Programme of Study, followed by STCG's 16-18 L2 Multiskills learners. A second example has included funding CSCS green card achievement as a part of the exit processes for young learners. The CSCS card provides license to work on construction sites.

Curriculum innovation

During the project STCG built state of the art training bays, designed to allow students to interact with live systems, fault find and build an understanding of key design principles. The bays covered the following green skill processes: air source heat pump installation; solar panel installation; EV charging & battery storage. The bays are particularly useful for upskilling purposes (qualified plumbers needing to add air source heat pump accreditation, for instance) since they provide sophisticated working systems.

In addition, STCG staff developed unique training rigs to cover all of the above three sustainable energy areas; these allowed students to build up and take apart systems using their component parts. The training rigs provide good practical experience in small groups for Level 1 & 2 students and will be recycled for use with cohorts in subsequent academic years.

The Group has also invested in virtual environment/reality construction programmes alongside virtual reality headsets. These resources will simulate real-world environments and provide a new 'hands-on' approach to skill development whilst closing the gap between theory and workplace practice. Programmes include Renewable Energy - Heat Pumps; Renewable Energy - Solar PV; Renewable Energy – Solar Thermal; Retrofit; Carpentry; Plastering; and Tiling.

Enhancing the careers experience

The raising awareness sessions, dropped into term 1 of each student's programme, helped students appreciate how important green issues are, how they will affect the Built Environment Sector, and how they will open a range of new careers within Built Environment trades and professions.

In addition, throughout the academic year STCG offered trips out for students, invited industry experts in, set up bespoke career events (such as a solar careers fair in association with Solar Energy UK), and ensured that green skills were embedded into live briefs set by local employers. These events all worked to enhance students' understanding of the well-paid progression routes open to them both in green employment and in education.

Project case study: South Thames College Group continued

Developing networks to strengthen workforce planning

In the summer of 2024 STCG was commissioned by the South London Partnership (sub regional collaboration body of five London boroughs) to work with the University of Roehampton (UoR) to carry out a programme-mapping exercise to identify career progression within the building retrofit sector across South London and use this to develop an HE/FE progression model.

The project explored and framed the current retrofit and wider (green) built environment provision offered by STCG and UoR. The work supported the evaluation of the current offer across both organisations, to include: the pipelines between STCG (FE) and UoR (HE); the progression lines within STCG and UoR as discrete organisations; and how provision accommodates existing and future demand in the relevant occupation sectors.

Recommendations were made as a result of the evaluations referred to above and it is envisaged that these will support the sub-region's ambitions to reduce carbon emissions and attain carbon net zero for London by 2030. Such recommendations may also be of interest to the Department for Energy Security and Net Zero (DESNZ) and other key stakeholders outside of South London.

STCG also engages in termly employer panels across all its sites and all key subject areas, including construction. These are designed to support employer-informed curricula and to help evaluate whether current programmes are fit for purpose (teaching the right skills, up to date, emphasising the right aspects). The panels strengthen the Group's employer network, supporting access to tailored work placements and progression routes.

We continue to develop our partnerships with local authority housing teams in the Group's sub-region. Existing housing stock in the relevant boroughs will require retrofitting and most new builds are asked to support net-zero ambitions, using sustainable energy sources.

Achievements

STCG has been shortlisted for two awards at the 2025 'Unlock Net Zero Awards'. The Curriculum Manager for construction at STCG South Thames site has been included on the shortlist for the 'Climate Champion Power Award' whilst the College Group has been shortlisted for the 'Skills & Training Award'.

STCG's commitment to moving to net zero status was recognised by the achievement of the Platinum Net Zero Standard in June 2024. This marked a 53% reduction in the Group's total carbon emissions since the 2018/19 benchmark period.

The Group has also recently established a net zero training hub which highlights those national qualifications (such as: Domestic Energy Assessment: Air Source Heat Pump Installation; Solar Panel Installation). STCG consider these to be vital in providing the skilled workforce required to attain London and national net zero targets. These curriculum developments have informed targeted professional development for staff to support the quality of our expanding green Skills delivery.

The end of project survey returns have shown that the work to support a greener London and help develop sustainable construction skills has had a significant positive impact on the Group's students. An average of 95% of students, across a range of cohort types, reported that they had learnt either 'something' or 'a lot' about green skills and technology during their course.

Project case study: South Thames College Group continued

In addition, significant numbers were considering green construction roles as employment progression (examples: 33% solar installation; 35% retrofit installation). Students also confirmed, via the survey, that they had been involved in significantly wider engagement with green-related events (trips, site visits, work placements, life briefs from employers). This wider engagement supported the development of work related-skills, with 92% of students reporting that they felt they had improved their 'commitment to getting work done' and an average of 93% reporting that they had improved their ability to use initiative.

Lessons learned and what the future holds

The raising awareness sessions at the beginning of programmes proved invaluable since they showed that awareness of fundamental concepts was lower than STCG had expected.

The project provided a focal point for understanding what students need to strengthen progression options, and also suggested where there might be gaps. For example, the Group is considering a Level 3 Programme of Study offer which has an emphasis on green construction. This may (depending on funding routes available) use the Retrofit Advisor and Domestic Energy Assessment qualifications as central structuring pathways. The Group has a significant number of Level 2 construction Multiskills students for whom this would offer a significant extra option and one which could provide a clear sightline to well-paid green related work.

What also became clear during the project was that, whilst huge demand is predicted from a variety of reliable sources (only 5% of plumbers are trained to install air source heat pumps; 66,000 person years will be required to fulfil retrofit requirements in South London alone; the current Energy Secretary pledging to triple the amount of solar power by 2030), there is still much work to do in understanding how to unlock this demand, match it to job vacancies and then align the supply required. To ensure the necessary balance between supply and demand, key stakeholders (employers, education providers, community and civic organisations) will need to build strong and flexible networks together. The Local Skills Improvement Plan collaborations will be important in this regard.

Project case study: South Thames College Group continued

Informing the sector

STCG have delivered breakout sessions at two consecutive AoC conferences and used these to share developments and progress with regards to the project's outcomes. Both sessions generated new and important links with other FE colleges. One such link led to a staff visit to new green construction facilities at a neighbouring college which informed our subsequent purchase of similar resources.

With the support of the AoC STCG have contributed to several webinars over the life of the project, allowing the group to share insights and take advice from a range of stakeholders including, for example: local authorities; trade bodies; university partners; FE partners; large local employers as well SMEs. Linked to this, STCG were asked to share project insights at the Department for Board & Trade's Sustainable construction webinar in September 2024. STCG have also used the opportunities provided by the project's formal insight days to, for example, invite local schools in to tour our green facilities and be taken through raising awareness presentations on sustainability.

Project case study: South Thames College Group: student focus

See below for two case studies involving STCG students who were enrolled in cohorts attached to the Project.

Level 2 Multiskills

When Jacob[1] joined the Level 2 construction course, he initially struggled with confidence in his academic abilities. However, the course's practical focus and individualised support helped him flourish.

Support was in place from the start to help Jacob settle, including one-to-one mentoring from construction staff, use of voice-to-text software, and modified assessment methods focusing on verbal explanations and practical demonstrations.

The retrofit and green technology units captured Jacob's interest, particularly:

- Solar PV installation - mastering panel mounting, wiring and system testing
- EV charging point installation - learning circuit requirements and safe installation practices
- Energy efficiency assessments - using thermal imaging cameras and energy meters.

Jacob engaged with a variety of employability events and projects, including:

- Attending green skills professional sessions with local contractors
- Participating in mock interviews with construction employers
- Developed his LinkedIn profile and digital skills
- Gaining his CSCS green Card through project funded training.

Despite initial challenges with basic skills, Jacob:

- Achieved Distinctions in all practical assessments
- Completed the City & Guilds Level 2 Award in Understanding Retrofit
- Secured the Level 2 Diploma in construction with merit in the retrofit modules
- Won "Best Student" award at college graduation.

Jacob has set himself a 5-year goal; he wants to launch his own business, specialising in domestic solar installations, EV charging installation, and energy efficiency retrofits. The integration of green skills into the curriculum has helped open a new direction for Jacob and given him a platform from which to move into well-paid employment.

[1] Names are pseudonyms.

Project case study: South Thames College Group: student focus continued

Level 2 Plumbing

Martin had explored many career ideas before signing up for Plumbing Level 1 with STCG. He found his first year very difficult since he was still developing his English and maths skills alongside the plumbing course and lacked self-belief. The weakness in maths sometimes made the practical components difficult.

Martin persevered, however, and he did manage to pass his Level 1 course, even though this meant working much later on into the academic year than many of his peers. This determination with plumbing was also carried through into his English and maths work, and it was noticeable during the year that these subject skills were gradually improving.

After much discussion with Martin and his parent, we agreed that he should progress onto the Level 2 Plumbing. His Level 2 year was phenomenally successful: Martin grew in confidence and became the student others would go to for advice with their work. He became much more open to feedback and used it constructively to develop his skills and understanding. With this increase in confidence and receptiveness, Martin embraced green issues in the curriculum. He asked to be shown and guided through the sophisticated air source heat pump training bays and was always present for green related trips and site visits. This included the new development adjacent to the American Embassy in Vauxhall, which incorporates rainwater harvesting, plant rooms, solar photovoltaic, as well as ethical waste management infrastructure.

Martin finished his studies with a combination of merits and distinctions across the eight graded units within Level 2. He progressed onto the NVQ Apprenticeship scheme straight from the Level 2 and he is now involved in rainwater harvesting initiatives as a part of his employment and, more generally, really enjoying the work and the chance to continue to develop. Although he has not had the chance to install air source heat pumps yet, this will be an aspect of his NVQ over the next few months.

Although Martin did particularly well on his Level 2, his success is not unique. It is worth noting that many of his peers also thrived and that 50% of the cohort progressed onto the NVQ Apprenticeship. This is an unusually high number for the Level 2 Plumbing leavers; the project was an important part of the curriculum structure, which helped secure such positive outcomes.

[1] Names are pseudonyms.

Project case study: London South East Colleges

Starting point

While green skills were an increasingly important element of LSEC's construction offer, the focus for innovation tended to be on Level 3 courses. This meant staff were keeping abreast of developments, but their application at Level 2 was ad hoc. At the beginning of the project, LSEC made arrangements to ensure integration of green skills on Level 2 construction courses would be more systematic.

At a strategic level LSEC organised employer panels to understand the latest industry developments and provide a steer for curriculum change. LSEC also established bi-weekly meetings with STEM directors on the delivery of green skills to ensure a sustained focus, including at Level 2. LSEC also engaged with employers to enhance the colleges work experience offer to Level 2 students, as well as to provide talks and masterclasses.

At curriculum level, LSEC included a standing item on the team meeting agenda and used a skills matrix to identify aspects of their courses where more green skills content could be covered. This was accompanied by specially commissioned CPD.

Curriculum innovation

LSEC drew on guidance from our employer panels and used the skills matrix to help us plan specific curriculum innovations. These covered, for example, the inclusion of:

·Retrofit across relevant construction courses

·Sustainability for electrical installation courses, and

·Carbon reporting within plumbing courses for plumbing students.

These additional elements were run as micro-credential courses, initially by external experts, and were open for students and staff to attend.

Staff participation was important, as it enabled them not only to acquire new knowledge themselves, but also to see how they might introduce micro-credentials into their own courses. This in turn has given the College a model to encourage adaptation in other areas of the curriculum.

Monitoring of student feedback was important in helping us understand their experience of green skills content. A review of student survey responses at the end of year 1 showed that some aspects of curriculum innovations had reached some students more successfully than others. While the majority of students reported learning something about green skills on their course, a quarter reported this was not the case.

LSEC used this information to pinpoint where more effort was required for year 2. LSEC also encouraged greater collaboration between the careers and curriculum teams to further identify where areas of the green agenda could fit in.

Project case study: London South East Colleges continued

Enhancing the careers experience

Sharpening students' appetite for the green content in their courses was an important element of the project, and so LSEC made changes to the careers, information, advice, and guidance (CIAG). In doing so, LSEC paid particular attention to Gatsby Benchmarks: 1 (A stable careers programme), 3 (Addressing the needs of each pupil), and 4 (Linking curriculum learning to careers). LSEC's CIAG changes included:

·Introducing a Green Skills induction week to highlight the connections between climate change, and related innovations and opportunities in construction:

- Embedding green concepts early in the course
- Structured guidance and early induction sessions that outline key content areas, progression opportunities, and how sustainability is integrated into learning
- Guest speakers to talk to students about their work in the sector.

LSEC also arranged for a number of external specialists to present to the students. By using the 'immersive classrooms' facility, LSEC were also able to broadcast some of these to students in other London colleges.

The talks were also an opportunity to shift stereotypes of who could work in construction. In one case, for example, a geotechnical engineer, Helayna Jenkins, spoke about opportunities in green engineering, as well as the importance of inclusivity, and her experiences of being a woman in the construction industry. Helayna spoke about the importance of developments such as female and maternity personal protective equipment, as well as period product provision.

LSEC also ran masterclasses to deepen students' understanding of specific green skills. L2 Carpentry and Bricklaying students, for example, attended 'introduction to retrofit' sessions.

In the area of work experience, our industry partners were responsive in offering and adapting placements, so they had immersive, green skills and technology content.

Developing networks to strengthen workforce planning

Taking AoC's steer, LSEC have focused on strengthening our partnerships with businesses. LSEC have found doors are open, given the current demand for a workforce better prepared to engage with green technologies. Key among our partners have been Keir Construction, Supply Chain Sustainability School, and the Energy Efficiency Association. Between them, these organisations have provided complementary support for LSEC's enhanced programme:

·Keir have provided specialists to engage with our students and staff

·Energy Efficiency Association has been pivotal in both marketing and developing new courses focused on energy efficiency. This collaboration has not only helped in expanding our course offerings but also provided crucial support in staffing and curriculum development, ensuring our programs remain relevant and impactful.

·Supply Chain Sustainability School designed and ran our initial micro-credentials courses.

Through regular participation at meetings convened by the London Mayor's Construction Academy, LSEC have been able to discuss experience of curriculum innovation, and of addressing challenges. This collaboration has been instrumental in refining LSEC's curriculum to meet industry demands effectively.

Project case study: London South East Colleges continued

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Achievements

Student survey responses at the end of the project indicated a significant impact on their learning experience. Almost all students (95%) reported learning 'something' or 'a lot' about green skills and technology during their course. LSEC also noticed a shift in students' career intentions as a result. At the end of the first year of the project, 15% were considering solar panel installation as a career, and 1% retrofit. At the end of the second year, these figures had risen to 18% and 6% respectively. In addition, 12% of students in both years were considering work in heat pump installation, and 9% in insulation.

The project has led to a momentum for further developments in green skills and technology in the curriculum. LSEC staff are enthusiastic to engage more with the green agenda. They have seen for example, the benefit of using the new retrofit centre with L2 students, as this is where the retrofit micro-credential was delivered and are looking to deliver micro-credentials themselves. Staff have also begun seeking out green skills events on their own initiative. This has included a visit to London Build 2024, which the L2 Electrical Installation and Brickwork students attended.

Lessons learned and what the future holds

While LSEC appreciated the value of green skills and technology and the importance of introducing these earlier in the curriculum at Level 2, the process was not without its challenges.

The first was the need to create a clear picture of what the jobs of the future would be, so the focus on green skills would be relevant to staff and students. This is where engagement with employers was so important, and ensuring they had frequent and direct contact with students and staff, through a variety of formats.

Project case study: London South East Colleges continued

Our second challenge was to extend the focus for green skills from Level 3, where it had more applications as far as staff were concerned, to Level 2. Here, the provision of micro-credentials by an external partner and staff's participation in these was key. They were both engaging and instructive for staff. This complemented the other CPD in green skills and technology that staff attended. LSEC also involved careers advisers in insight days to raise awareness in other schools and colleges of the relevance of green skills at Level 2, as a pathway into the jobs of the future.

It also helped that staff had sight of the changes in knowledge and career aspirations among their students, and over time. Here LSEC found the end of year surveys with questions focusing on these areas were very helpful.

Finally, collaboration has been an important element of the process. LSEC worked closely with Waltham Forest College to consider different ways of adapting the curriculum. The joint events held for students at both colleges also helped raise their confidence to talk about green skills. LSEC promoted targeted collaboration internally too, between our careers team and curriculum staff. This helped the teams develop a common understanding of how jobs were changing, and what green skills meant for students' career choices.

Engaging in the project has given us an understanding of how industry partnerships can better inform curriculum design, and LSEC will build on the relationships developed during the project to achieve this. This will include ensuring LSEC integrate green skills modules across all construction and engineering courses.

Informing the sector

In order to make sure others benefitted from what LSEC learnt, LSEC conducted four insight days as part of the project.

One of these was the 'LSEC business breakfast: Green skills in action', where local employers were invited to our Bromley Green Lab. LSEC presented the project and the partnerships that support LSEC's green delivery.

A further insight day was tailored to colleagues in the sector. Here LSEC described the project, highlighting the integration of green skills into curriculum and experiences in encouraging staff and student engagement with green skills.

In addition to insight days, LSEC have also presented the project at external events. This included the London Sustainability Expo in December 2024, where LSEC ran a stall explaining green skills and opportunities for training to attendees.

LSEC have frequent employer panel meetings as part of wider college activity, enabling employers to make concrete suggestions for curriculum change and shaping provision.

Finally, the college's participation in the Mayor's Green Skills Academy (MGSA) for Local London has allowed LSEC to highlight how this project fits with wider initiatives in the region.

Project case study: London South East Colleges: student focus

See below for two case studies involving LSEC students who attended Level 2 construction courses over the course of the project.

Case study one

Joe[1] grew up in Lewisham, South London—the 44th most deprived borough in England—where he faced significant socioeconomic hurdles. Despite these challenges, he achieved GCSEs in core subjects at his local comprehensive school.

Like many young men from similar backgrounds, Joe's career aspirations were shaped by the trades he saw around him. With limited guidance, he initially enrolled in a Level 2 Plumbing course in 2023 at LSEC, uncertain about his long-term future.

Joe attended his first Green Skills induction session, initially sceptical about its relevance to his career path. A renewable energy workshop led by industry professionals sparked his interest in sustainable construction. By visiting a sustainable housing development with his course, he witnessed green plumbing systems in real-world applications, bringing theoretical concepts to life.

Joe completed a specialist module on air source heat pumps, discovering his passion for renewable technologies and their application in modern plumbing systems. Industry connections transformed Joe's self-perception from "just a student" to a future professional in sustainable construction.

"Before joining the course, I thought being a plumber was just about fitting pipework in houses. Now I see how my skills can help build a more sustainable future. There's so much more opportunity than I ever thought that there was."

"The biggest change I've seen in myself isn't just what I know, but how I carry myself. I walk into a room now believing I belong there and have something valuable to contribute."

Specialist roles in renewable energy systems typically pay much more than traditional trades positions and there is a potential increase through specialisation in green technologies compared to traditional plumbing.

[1] Names are pseudonyms.

Project case study: London South East Colleges: student focus continued

Joe underwent a transformation from an uncertain student to confident future professional.

"I have learnt so much about green technologies and all the tutors here are on your side. They treat you as an individual and my lecturer is amazing. There are so many industry opportunities, including summer internships, so I am excited about the future."

Joe's journey:

Before Green Skills programme	After Green Skills programme
Limited career vision focused on traditional plumbing.	Expanded vision of career in sustainable technologies.
Reluctant to speak up in professional settings.	Confidently engaged with industry professionals
Limited technical troubleshooting abilities.	Developed innovative approaches to technical challenges.
Uncertain about long-term career prospects	Clear pathway to higher-paying specialised roles.

[1] Names are pseudonyms.

Project case study: London South East Colleges: student focus continued

Case study two

After relocating to Southeast London as a child, Rob lived in the Royal Borough of Greenwich, the 57th most income-deprived borough of the 316 boroughs in England, where in 2019, 15.9% of the borough was classed as income-deprived. Rob studied at a local secondary school where he achieved GCSEs in the core subjects of English, Maths and Science.

Like many young people in the borough, Rob's career aspirations were determined by the role models around him, primarily trade workers. He took the advice of those around him and enrolled on a Level 2 Electrical course in 2023 at LSEC.

Through hard work and dedication, he passed his course in the summer of 2024 and began to think more about his next steps. Rob decided to enrol on a second Level 2 course, this time in plumbing, broadening his technical abilities across multiple trades.

Throughout his City & Guilds Plumbing course, Rob had the opportunity to attend guest talks and workshops relating to sustainability and green skills, including a workshop hosted by Kier Construction at Bromley campus' Green Skills Lab. It was after this event that Rob first began to think seriously about sustainability and what that meant for the construction sector.

While his course focused on traditional plumbing skills, Rob began to see that the scope within the industry reached further than traditional domestic or site work.

"The programme helped me see there is more to plumbing than fixing leaks. I would really like to learn more about some of the modern technology and activities that are still being developed. It is exciting that there will be jobs in the future that we do not even know about now."

"I didn't really know what green skills meant before, and even though I still wouldn't say I know a lot about it, I definitely understand more, and how sustainability will affect construction in the future."

[1] Names are pseudonyms.

Project case study: London South East Colleges: student focus

Rob was keen to continue learning and developing within his chosen career. Being exposed to the opportunities within the green skills sector broadened his aspirations and gave him an understanding of this growth sector.
Reflecting on his experience on the L2 course, Rob felt he had been able to shape his understanding of what green skills meant for a career in plumbing.

"I really enjoyed the sustainability workshop and learnt a lot. I did not really know what sustainability meant, but when we started talking about it more, I realised I knew more than I first thought, and it is about doing things to help the environment however we can."

Rob's Journey:

Before Green Skills programme	After Green Skills programme
Limited understanding of sustainability in construction.	Growing comprehension of sustainability principles.
Career vision confined to traditional trades.	Expanded vision of career possibilities.
Hesitant to engage in professional settings.	Increased confidence in professional interactions.
Uncertain about future opportunities.	Excited about emerging technologies.

[1] Names are pseudonyms.

Next steps

Building on the success of the pilot phase, the two colleges are now embedding green skills delivery into their mainstream curriculum to ensure long-term sustainability. Green construction content is being integrated into Level 2 and Level 3 programmes, with curriculum teams continuing to collaborate with employers to ensure training remains aligned with industry needs.
This blueprint for green skills delivery has been developed, drawing on learning from all three phases of the programme. This framework outlines effective processes for establishing partnerships and delivering green skills training in the homes and buildings sector. It serves as a practical guide for other institutions looking to replicate the model.

To support wider sector adoption, the pilot colleges have:

- Produced detailed case studies capturing activities, challenges, successes, and recommendations for local collaborative delivery.
- Contributed to an external-facing report at the end of each project phase, offering insights into implementation and impact.
- Shared resources such as skills matrices, curriculum models, and employer engagement frameworks via the Creating a Greener London – Sustainable Construction Skills project page.

Dissemination activities are ongoing and include:

- A national webinar series hosted by the Association of Colleges (AoC), where pilot colleges share lessons and tools for green skills delivery.
- Presentations at major sector events, including the AoC Annual Conference and the Sustainability in FE Conference.
- A series of ten insight days hosted by the pilot colleges, enabling peer-to-peer learning for institutions not directly involved in the programme. These sessions include:
    - Staff discussions on forming local partnerships
    - Methods for identifying relevant green skills
    - CIAG findings and student feedback
    - Examples of green skills delivery in practice.

Looking ahead, a longitudinal study led by an independent evaluator will run through until June 2027. This theory-based review will assess both short- and long-term outcomes, including:

- Level 2 student progression and earnings using Longitudinal Education Outcomes (LEO) data
- Green construction job vacancy trends in Greater London
- Impact on curriculum design, employer engagement, and student aspirations.

The evaluation will include both micro-level analysis of each pilot and a macro-level meta-analysis of the programme's collective impact. This evidence base will inform future policy, funding, and curriculum development, ensuring the pilot colleges' work continues to shape the national green skills agenda.

Contact us

Thank you to the college pilots and JP Morgan Chase Foundation for making the programme possible.

For more information on the programme please see our dedicated website Creating a Greener London – Sustainable Construction Skills or alternatively contact the projects team - projects@aoc.co.uk