MCIBSE CEng Experience Based Learning Record

The purpose of this form is to demonstrate how the applicant has gained learning within a professional environment. They must show that their knowledge and skills are equivalent to those gained in an academic setting at masters level. The learning outcomes on this form are from the Engineering Council Accreditation of Higher Education programmes (AHEP 4) model which details the standards that academic courses must cover to be accredited.

To determine if an engineer has gained sufficient experiential learning to be equivalent to Masters Level learning they must describe a variety of problem-solving activities and projects which they have either led or were substantially involved in. These can be the same projects that are referenced in your Engineering Practice Report. When describing these activities or projects you should identify how you are demonstrating your ability to carry out the activities described in the following learning outcomes. Your description should be clear and concise and include how you gained the knowledge and skills required. Use 'I' statements rather than 'we'.

Name: **CIBSE Membership number:**

AHEP Reference	Learning Outcome	Company and job title	Date	Examples of **technical experience** gained in the workplace Please add a **brief** summary of examples of technical experience gained in the workplace.	**For Office use only**
M1	Is able to draw upon a comprehensive knowledge of natural science and engineering principles in the solution of complex problems which will often be at the forefront of current knowledge.	[redacted]	2017	Improving internal operational process & efficiency is a continual focus of mine. Throughout managing the BIM element of the businesses in the last 10-15 years, it has been a challenge to change the way in which the teams work. As a building services engineering team, we have to solve both complex engineering, but also complex coordination problems. My role in projects, understanding and bringing together the complex engineering needs of multiple specialist disciplines, has highlighted a need for more focused collaboration and coordination and the breaking down of silos. This is fundamental to the engineering success of a project as buildings have become more complex, both from an efficiency and engineering quality perspective. My ability to understand the interactions between these services and the impacts the holistic coordination has on the fundamentals of the design itself has put me in this unique position. At [redacted] in 2017, I co-led a team with two UK Directors to develop an internal initiative called *'Design for Change'*. The aim was to critically assess and improve our workflows to enhance communication, coordination, and design efficiency. I ran workshops across the UK to gather input and gain buy-in from all levels of staff. This led to the creation of a new project role—the *Design Coordinator (DC)*—focused on ensuring effective communication and coordination on all projects. I documented the role's scope and responsibilities,	

				supported those who adopted it, and led monthly check-ins to share learnings and improve the role's effectiveness. Key goals of the DC role included: • Enhancing engineering quality, collaboration, and coordination • Improving communication within project teams • Managing tasks and deliverables to meet project deadlines After seeing the success of this approach, I initiated discussions with global teams, many of whom have since adopted or adapted the framework. I continue to bring the UK DC group together to evolve the role, share knowledge, and embed best practices into our delivery processes.	
M2	Is able to identify, process, interpret and apply natural science and engineering principles in the solution of complex problems. Using engineering judgment to work with information that may be uncertain or incomplete to make a well-reasoned conclusion.	[redacted]	2007	**Example 1 –** [redacted] This fitout project needed to add a new chiller plant to the existing basement plant room that had extremely limited space and access. The existing plantroom was very congested, with existing chiller plant and a lot of associated pipework and plant. The existing concepts were not working for the space, so I developed the 3D model, including the existing installation, using a model from the as-built information, then worked through the chiller layout, access, and maintenance for the chiller and then all the associated plant. I had to use my design knowledge to understand the constraints to make this work and the technical limitations and requirements of the equipment itself. This would not have been possible if I did not model both the existing and new plant in detail to demonstrate the space would work, including how the access requirements and plant replacement would work, as well as understanding the	

				engineering operational characteristics and limitations of the plant and design itself. This was a challenging exercise and meant that the overall fitout would be viable.	
		[redacted]	2015	**Example 2 –** [redacted] As lead MEP coordinator, I managed the integration of complex building services across critical spaces such as basement plant areas, risers, and roof plant zones. These areas had tight spatial constraints and high service densities. As you would expect with a building of this type there was a lot of services to coordinate, working through each of the areas and making sure there was enough access and the services where not clashing within the space given. We had the main risers but there were also service risers which were run to the labs on each floor. This meant less services in each of the ceilings on the floors as we could run directly to the sinks and fume cupboards. The roof was made complex with the sightlines and the fume extract system minimum heights. I collaborated closely with the architects to agree a solution to screen this while still allowing access, which was made more complex with one of the extract risers being very close to the discharge point. To get the system design right for Labs I had to agree with the client/team how many of the fume cupboards could be at use at the same time. This would dramatically change the amount of air changes that were required for the space. Once agreed, I was able calculate the requirements, size the systems and coordinate the ducts on each of the floors and risers. By filling in the missing information gaps and promoting flexible application of the client's standards I was able to remove project engineering and planning	

				uncertainty and provide a scheme that met an achievable and re-negotiated brief.	
M3	Is able to engage appropriate computational and analytical techniques to better understand complex problems	[redacted]	2019/2020	In 2019/2020 I lead an international team which has developed an internal process to measure the whole life carbon for the MEP elements in our buildings. We needed to understand embodied carbon emissions at the early design stage so that it could inform choices made using whole life carbon thinking. In the case of MEP, this is challenging as the designs are so complex and with many 'elements. Under my leadership we established a method to extract data from BIM models that link to an embodied carbon database. This way, the design team can quickly study the embodied carbon of MEP designs in detail to make better-informed decisions to help meet climate targets. It also allowed us to build a database of typical project typologies. The process we had developed was through the use of automation in Revit and Dynamo. The Dynamo script was able to extract the data we required for the calculations from the Revit models. I oversaw all aspects of this development, reviewing and discussing options plus connecting resources when required.	
M4	Is able to select and critically evaluate technical literature and other sources of information to solve complex problems	[redacted]	2014-2016	I have been part of the evolution of the digital standards as they have been developed in the UK and turned into internation ISO standards. Being an early adopter of the standards and working with clients to understand the benefits of the standards and helping them to implement in the businesses I have worked for and the client's own requirement operationally and for the projects I have worked on. I have gained certifications in BIM level 2 when it was BS/PAS standards and then ISO standards. Even before this I was helping clients to navigate the complexities of this standard approach which really is just good	

				project planning that relates to data deliverables. One great example of this is [redacted]. My role on the [redacted] as Project Information Manager meant that I had to lead the digital approach to all aspects of the project across all disciplines. I developed the BIM execution plan with the design team, making sure this was in line with the client requirements. At the design stage the client's information requirements were not established to the level they were aspiring to achieve. I worked as part of a team to develop the employer's information requirements with the client's team. This meant seeking engagement from various parts of the client's business and their associated stakeholders. This included, facilities management, security, asset management, management teams for this estate and for the [redacted] overall. The main purpose of doing this at this stage was to make sure these requirements where in the contractor's tenders and they had clear direction of what was required of them for delivery. As part of this process, what was developed, could be used by the client for all future works across all their sites. An example of this was I developed a numbering system for all the documents which would be used on all their facilities in the future. The benefits from this were the standard approach across all of this project and any future projects, enabling documents to be searchable on their systems throughout design, construction and into operations. The benefits of the data planning at this early stage was to make sure the approach is agreed to be able to agree what data is important to be used throughout the design and construction, and then setting it up for use in operations which will bring many efficiencies in the operation through asset management.	

M5	Is able to resolve complex problems using original thought meeting a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health and safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	[redacted]	2016-2019	Leading the BIM element on projects covers all these areas, as well as being part of the core management team of [redacted] from a governance perspective. All projects have coordination that I have led to resolve clashes between services, structure and architecture to enable the designs to work with in the agreed space. Depending on the area, this would include reviewing the federated models with the team and agreeing how the design needs to change to have a solution that works for all areas where possible. We agree the clash tolerance and a make sure these are documented in the project BEP. I have been the person making the changes to the model to resolve complex coordination areas as well as the person that has led the delivery of the standards for my discipline across a 1000-person business. At each step I am implementing best practice and industry guidance while taking the best-in-class elements from each and directly applying them. One example of this was c[redacted] where the basement was very congressed. I coordinated the services layout to work in the limited space, agreed more space where needed with the Architect, allowed space for access for emergency exits and access to equipment, aligning to standard requirements which applied to this project. To cover each of the considerations I would do the following: **Health and Safety:** • Ensured adequate access and egress routes for emergency exits. • Verified service layouts allowed safe maintenance access in line with regulations. • Applied industry guidance to avoid clashes that could create safety hazards. **Diversity, Inclusion, and Cultural Considerations:** • Integrated accessibility requirements into BIM coordination, ensuring compliance with relevant inclusive design standards. • Considered cultural sensitivities when coordinating spaces, particularly in public or international projects. **Societal and Environmental Considerations:**	

				• Optimized designs to reduce material waste and improve sustainability. • Ensured coordination of services allowed for energy-efficient system layouts. **Commercial and Business Needs:** • Balanced cost efficiency with technical feasibility, ensuring coordination decisions supported project budgets. • Implemented BIM standards to enhance consistency and efficiency across a 1000-person business, improving overall project delivery. **Industry Standards, Codes of Practice, and Governance:** • Aligned all coordination efforts with BS EN ISO 19650 and other relevant BIM standards. • Documented clash resolution strategies in the BEP to ensure compliance with project-specific and industry-wide best practices. • Led the implementation of BIM standards at a corporate level, ensuring best practices are consistently applied.	
M6	Is able to approach, plan and resolve complex problems using a systems approach and taking account of multiple stakeholders and/or factors.	[redacted]	2018-2022	I apply systems thinking to resolve complex problems that involve multiple stakeholders, regions, and technical disciplines. From 2018 to 2022, I led the global digital engineering strategy for [redacted] by bringing together regional digital leaders to align on strategic priorities and create a unified framework for project delivery. I initiated and facilitated three global digital workshops—in 2018, 2019, and 2022—where I led strategic planning sessions to identify our highest-impact focus areas. These included: • Development of global training frameworks • Standardisation of model management practices	

				• Alignment of digital engineering standards and guidance • Creation of template libraries and content management tools • Coordination workflows and data automation strategies Following the workshops, I chaired bi-weekly global calls to maintain momentum, share knowledge, and address implementation challenges. My leadership ensured cross-regional alignment and consistency in how projects were delivered, improving efficiency, quality, and collaboration across the business. This global coordination effort addressed not only technical challenges, but also operational, cultural, and organisational differences—resulting in a scalable system that continues to evolve as the business grows.	
M7	Is able to evaluate the environmental and societal impact of solutions to complex problems	[redacted]	2012	I assess the environmental and societal impact of engineering solutions at both the project and systems level. A key example of this was my work on the main stand at [redacted], where I led efforts to design prefabricated MEP service risers. Our goal was to reduce on-site waste, speed up installation, and improve construction safety. Due to complex structural constraints, traditional prefabrication methods—typically lowering services from above—were not feasible. I worked closely with the subcontractor and engineering team to develop a modular system that could be lifted and assembled from below, allowing precise alignment and a reduced footprint. I adjusted the layout and sizing of services specifically to suit	

				the prefabrication strategy, ensuring it was both technically sound and constructible. This solution reduced material waste on-site, improved the quality and safety of installation, and shortened the installation programme—delivering both environmental and logistical benefits. It also demonstrated how careful planning and early design coordination could unlock off-site manufacturing potential, even in constrained environments. In addition to this project, my ongoing work leading the development of embodied carbon measurement tools (as described in M3) reflects my broader commitment to sustainability. These tools have enabled our teams to evaluate the carbon impact of MEP systems and make better-informed design decisions.	
M8	Is able to analyse a proposed course of action on the basis of ethical choices and relevant professional codes of conduct.	[redacted]	2024	I proactively engage with ethical issues in engineering practice, particularly where digital innovation and client responsibilities intersect. In the last 12 months, I have been part of a firm-wide working group focused on Artificial Intelligence (AI), tasked with evaluating risks and establishing policies around the ethical use of AI tools. One of the major risks we identified was the handling of client data—ensuring confidentiality, compliance with intellectual property laws, and preventing unauthorised data use in AI applications. I contributed to the group's analysis of these challenges, drawing on both technical and contractual perspectives. I played a key role in shaping the AI policy, particularly on how our teams should engage with generative tools and machine learning platforms. I reviewed the draft in detail and provided final sign-off alongside the group before firm-wide adoption. This process reaffirmed the importance of ethical engineering leadership in emerging areas of technology, and our policy is now	

				used globally to guide responsible innovation across the business.	
M9	Is able to employ risk management techniques in the management of activities and projects	[redacted]	2015	I actively employ risk management techniques to enhance project safety, quality, and delivery. At Jacobs, I introduced the use of SHE (Safety, Health, and Environmental) boxes on all project drawings. These boxes required engineers to assess and document relevant risks before issuing any deliverables. I integrated this into the QA workflow, ensuring each drawing was reviewed for HSE considerations prior to approval. This approach significantly improved project risk awareness and accountability. It helped reinforce a culture of proactive risk consideration and supported compliance with organisational and regulatory standards. Another example was my work at [redacted], where we supported the conversion of an active coal-fired system to biomass. The site was both a live construction zone and an operational power station, requiring careful navigation of overlapping hazards. I completed rigorous site-specific H&S training and followed all procedures while onsite, setting an example for the team and contributing to overall site safety. More broadly, risk assessment and mitigation are central to my leadership approach on projects. From digital coordination risks to health and safety on site, I regularly embed risk management into design reviews, delivery plans, and team workflows.	
M10	Is able to identify security risks in any proposed activity and mitigate them as appropriate	[redacted]	2022-2024	I recognise the critical importance of security in engineering, particularly as we increasingly use cloud-based platforms and manage sensitive client data. As Principal of Digital Innovation, I stay up to date with evolving cyber threats and actively support the integration of security protocols in our digital workflows.	

				As an organisation, we prioritise cybersecurity and run mandatory training multiple times per year. I have consistently achieved top scores in internal phishing simulations and have correctly identified and escalated actual phishing attempts. These scenarios have enhanced both my awareness and my ability to advise others. In my role, I help ensure that project data—including BIM models, asset registers, and proprietary design information—is securely stored, shared, and accessed according to best practice. This includes advocating for the use of secure common data environments (CDEs) and implementing permission-based data access. Beyond compliance, I encourage a culture of security awareness across teams. I regularly communicate security priorities in team meetings and support others in recognising risks. By leading through example and reinforcing best practice, I help mitigate digital security risks in high-stakes project environments.	
M11	Is able to use the principles of equality, diversity and inclusion for the benefit of all stakeholders	[redacted]	2016-2019	I am fully committed to promoting equality, diversity, and inclusion (EDI). [redacted]uring my time as Associate Principal- BIM Manager at [redacted] I led a diverse and inclusive team that reflected a range of backgrounds, experiences, and perspectives. I actively fostered an inclusive culture by encouraging open communication, supporting flexible working arrangements, and creating opportunities for all team members to grow. I regularly organised team events to strengthen relationships and ensured everyone felt valued and heard. When challenges arose, I made time to listen and work through solutions with individuals, ensuring that support was both timely and respectful. My commitment to EDI is also reflected in the mandatory and voluntary training I've completed, including: • Diversity, inclusion, and sensitivity • Preventing discrimination and harassment (Managers) • Unconscious bias • Whistle-blower training • Anti-bribery and GDPR awareness	

				Beyond policy compliance, I've embedded inclusive thinking into team structures and workflows. I restructured our engineering teams to integrate BIM Designers directly into project teams, enabling cross-disciplinary learning and dismantling traditional silos. This change promoted shared understanding, stronger collaboration, and better representation of voices across the project lifecycle. As a mentor and global digital leader, I continue to promote inclusive practices in my work with regional BIM leads, encouraging equity in training, recognition, and leadership opportunities.	
M12	Is able to assess the practical factors underpinning any technical solution	[redacted]	2010	I consistently assess the practical factors involved in delivering technical solutions, recognising that a theoretically sound design must also be installable, maintainable, and visually appropriate. One example was a ceiling coordination challenge I resolved for a hospitality space at [redacted]. The proposed solution from one of the engineers involved using oversized circular diffusers to meet peak load demands on game days. While technically feasible in terms of airflow requirements, this design posed major practical challenges. The ductwork connections were large and difficult to route within the limited ceiling void, and the diffusers conflicted with both the ceiling layout and other services. I reviewed the spatial and aesthetic constraints and proposed an alternative layout using smaller diffusers. This solution met performance requirements, reduced installation complexity, and aligned better with the visual and architectural intent of the space. I coordinated closely with the architect and project team to finalise the revised layout, which was ultimately adopted in the final design. This experience highlighted the importance of integrating practical, spatial, and visual considerations into	

				design decisions—ensuring that solutions are not only technically robust but also deliverable in real-world conditions.	
M13	Is able to select appropriate materials, equipment and technologies for a given project or activity.	[redacted]	2020-2022	Evaluation, testing application of new software has been a part of my role for many years. Depending on the solution, I have created a process to test, evaluate and agree/disagree if the solution is ready for use before it is made available for general use. One example where I evaluated a new software and then made a business case for the purchase of this software is Avail. This is a content management software we now use for all our design application software content. The business case included benefits, cost, ROI calculations and implementation times. This was agreed with our CEO and has now been running for a few years with great uptake and benefits.	
M14	Is able to employ quality assurance principles in delivering stakeholder satisfaction	[redacted]	2020-2023	Review of projects has been a key part of my role for many years. I Introduced reviews using [redacted] to many of the firms that I have worked with. At [redacted] I trained all technical staff on how to use this tool to assist in quality assurance/review, collaboration and coordination. Model reviews throughout the project are important as they show design progress, visibility of the design and allow you to work through solutions both internally and externally. Coordination is not about fixing the issues once the design is done. I promoted team collaboration and working through solutions as a team. This maintains local and wider team project motivation and efficiency. At [redacted] I introduced weekly project model review to be normal practice and would run one of these sessions in the open office each week to promote this workflow. Over the years we have seen this build up to become a normal part of the project. I have been working with the teams globally to introduce this workflow and running through results and benefits of this approach. In the UK this has been accelerated by the clients and contractor requirement and the maturity of BIM in this region.	

M15	Is able to manage a project efficiently against key deliverables	[redacted]	2016 - 2019	My role on projects over this period as regional BIM leader, was to manage the digital deliverables for the projects, working alongside the Project Manager and Engineering Directors to agree resources for both Engineers and the BIM team to meet the project milestones. I would develop the deliverables list, manage the project standards to suit the client's digital requirements and manage, review and deliver to suit agreed deadlines. This involved assessing the need for bringing in additional temporary resource, to looking at the size of the BIM team more holistically, in association with the business plan, to deliver BIM output as the business grew. With the development of digital ways of working in UK projects from standards like BS1192 and then followed with internation standards such as ISO19650, the management of the digital requirement on a project has become a critical part of the project's delivery. One example project that I managed over this period was [redacted], London a mixed-use development, with advanced technology & sustainability goals. I was leading this project from stage 1 to 3 supporting the overall PM to achieve all deliverables and then had oversight of the project team at the later stages. This often meant coordinating the weekly or monthly delivery of 100's of drawings and the associated collaboration that went into these outputs.	
M16	Is able to function effectively as an individual, and as a member or leader of a team. Evaluate the effectiveness of own and team performance	[redacted]	2016-2019	I have managed teams in my last 4 companies. Each company has different standards and approaches to staff development. Over the last 18 years I have developed as a manager and have been lucky enough to see people I have trained and develop from the start of their career, go on to be leaders in our industry.	

		[redacted]		I work with my staff to agree objectives and SMART goals and have guided them to achieve these goals. I would make sure that I supported them formally but also informally. It has always been important to me to make sure my teams are happy in their role. Being able to grab a coffee and talk through how they are as a person too, is important. At [redacted] I developed a strong BIM team over the 4 years I was the BIM manager. I created new roles and job descriptions that enabled growth within at digital pathway, which the business did not previously have. I changed the structure of the engineering teams to include two BIM designers in each team. They would support the engineers in that team and model manage every project. I led this change to break down a siloed discipline workflow which is common across our industry. All engineers now use Revit on their projects and [redacted] is used to review the projects regularly. My influence and team became wider than the BIM team itself. This has been an important change to the workflow as project demands have evolved and coordination has been critical to the project delivery. I have now taken on a mentor role for all the BIM leads globally. I work with all of them to help them develop in their roles and develop the approach and plan for their part of the business/region. This includes the development of business plans, presentations to regional leadership and setting up training requirements.	
M17	Is able to communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.	[redacted]	2019-2022	One of the challenges of my role is to communicate the importance of digital standards to the business at all levels both internally and externally. The framework for these effects both technical and non-technical parts of the business and I have to adapt the messaging to suit the audience I am delivering the messaging and training to. The details of this framework can get quite involved, when you start to look at the standards, like the ISO 19650 series of standards	

				for example, but I have been able to develop an approach to break this down and simplify to suit teams like Bid and Marketing groups to give them the information they need to know. At the other end of the scale are BIM managers or Project Information Managers who need to know the all the details and related documents at a fundamental technical level.	
M18	Plans and records self-learning and development as the foundation for lifelong learning/CPD.	[redacted]	2019-2024	Continual professional development is a key part of all engineers and designers' growth. As part of my role, I need to be up to date with all aspects of the industry, especially with relation to digital. I keep up to date with technical knowledge through my network on LinkedIn and the companies, individuals, and groups I follow, reading articles in the CIBSE journal and AEC magazine, CPDs that are put on by the UK team, webinars and attending conferences in the UK and globally. I am certified as a Task Information Manager through the BRE + a Fellow with CIBSE. For both of these I am required to record my learning/CPDs. I am the co-chair of the [redacted]. This is a great network where we share learning with each other and with the wider industry. Development of my team has also always been a focus. I have encouraged them to join the regular CPDs on engineering topics to develop their knowledge to use on projects. We have had several of the team complete the first part of their ISO 19650 BIM certification. I in turn then learn from them and their interests. Other CPDs I have done have been on areas of innovation with Digital Twin and Smart Buildings, which are both big areas of focus for me currently.	