



CSA'S TRAINING & CAREER DEVELOPMENT HANDBOOK

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EDITION**



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1 TRAINING & CAREER DEVELOPMENT

The CSA originally developed a fully structured Path of Development and Career Progression to encourage commissioning engineers, commissioning managers (and any other staff involved in the commissioning process) to follow a definitive course of study which will develop their theoretical knowledge and practical skills and ensure that they are able to fully realise their potential in the commissioning world.

This has now been expanded to include Water Treatment with a dedicated Distance Learning Course, Pathway of Development and Job Role positions. All of these roles are also aligned with current SKILLcard requirements with the CSA adopting their colour code for each grade.

The aim of this handbook is to show how this system works and how each applicant may achieve the best results. The objective is to ensure that all water treatment and commissioning staff have the necessary knowledge to be able to carry out their work to the best of their ability.

This has two main benefits. Firstly, it ensures that staff provide a consistently good standard of work. Secondly it ensures that water treatment commissioning companies provide their clients with a consistently good standard of commissioning service. These combine to ensure that CSA Members, both company and individual, are assured of a reputation for good work. This can benefit them over the long term in repeat business from satisfied clients.

The following pages comprise an outline of the career path, the various job descriptions for the different grades of commissioning personnel and the qualifications available.



2 Job Descriptions

2.1 CSA Commissioning Grades

2.1.1 Grade T – Trainee

Overview of the role:

An employee in this occupation will be responsible for supporting commissioning engineers with pre-commissioning and commissioning works of HVAC systems.

Typical job titles include:

Trainee commissioning engineer, Apprentice commissioning engineer, Assistant commissioning engineer.

Job Grade:

Grade T

**Red
SKILLcard**

Experience:

None required, new starter.

Occupation summary:

A Trainee Commissioning Engineer is an individual who is starting their career in the field of commissioning engineering and is in the process of developing the skills and knowledge necessary to become a Commissioning Engineer.

Trainee Commissioning Engineer aims are to gain hands-on experience in the commissioning of building systems. They should be highly motivated, eager to learn, and possess excellent communication, organizational, and problem-solving skills. The goal of a Trainee Commissioning Engineer is to develop the skills and knowledge necessary to become a successful Commissioning Engineer, this occupation is found in and throughout the built environment sector, via supply chain MEP contractors and commissioning subcontractors.

Trainee commissioning engineers operate in a range of settings including the checking of air and water measurement equipment to be used on the projects, the ability to learn and understand how the measuring equipment is used on the projects, understand the principal of pre-commissioning and the basics of commissioning systems.

Key responsibilities of a Trainee Commissioning Engineer may include:

- Assisting senior Commissioning Engineers in conducting start-up and functional testing of HVAC systems and other building systems.
- Learning about the commissioning process and gaining experience with various commissioning tools and techniques.
- Participating in training sessions and workshops to develop technical knowledge and skills.
- Assisting in the preparation of commissioning reports and other documentation.
- Observing and learning from more senior Commissioning Engineers to develop an understanding of how to troubleshoot problems and resolve issues with building systems.



Site and office environments include industrial, commercial, residential, refurbishment, heritage, retail and public sector projects.

The broad purpose of the occupation is working in an exciting and dynamic environment which could be in an office or on a construction site at the heart of the organisations including versatile activities using digital processes to input test data.

Trainee commissioning engineers within this specific career area are engaged to interpret, analyse, contribute and directly assist commissioning engineers working with a wide range of project resources and documentation.

Trainee commissioning engineers will develop a range of highly transferable knowledge, skills and behaviours that can be applied across a range of large and small MEP systems. Effectively recognising site hazards and safe working practices with thorough knowledge of relevant health, safety and environmental legislation to ensure compliance with company site procedures and processes.

Duties:

1	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Operatives or BESA Health & Safety Environment Course and Test
1.2	Internal company H&S induction (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep their company informed of any damaged PPE
1.5	Review RAMS for each project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.6	Working at Heights training completed by candidates' company
1.7	Manual Handling training completed by candidates' company
1.8	Asbestos Awareness training completed by candidates' company
2	Site Equipment Tools and Materials
2.1	Air Balancing Equipment
2.1.2	Must be able to carry, set up and handle air measuring equipment safely and gently.
2.2	Water Balancing Equipment
2.2.1	Must be able to set up and use U tube Manometer & digital water manometer
5	Site Activities and Performance
5.1	Must follow site procedures for Entry & Exit to Site
5.2	Must report to client team daily, on arrival and before exiting site

Development Aim:

Aim	To participate fully in the Company and CSA training schemes with a view to completing Parts A-C of the Distance Learning Course of the Commissioning Specialists Association. To know the basics regarding company test equipment and Health and Safety & Environmental needs
CSA Training Route	There is no formal CSA training for the entry level grade. Candidate is encouraged into to completing Parts A-C of the Distance Learning Course of the Commissioning Specialists Association as part of longer-term training plans.
End Point Assessment	N/A as this is the entry level CSA position.
EPA Award	Open award



2.1.2 Grade 1 – Assistant Commissioning Engineer

Overview of the role:

Commissioning HVAC Systems on construction sites or other client buildings.

Typical job titles include:

Trainee commissioning engineer, Apprentice commissioning engineer, Assistant commissioning engineer.

Job Grade:

Grade 1

**Red
SKILLcard**

Experience:

Minimum 12 months proven commissioning experience with a recognised company/organisation and completion of DLC A and Grade 1 Online Exam. Or relevant NVQ level 1 in Building or Allied Services with minimum of 18 months commissioning experience. Must comply with Grade 1 job description.

Occupation summary:

Grade 1 Commissioning Engineer is an individual who is within their first year of their career in the field of commissioning engineering and is in the process of developing the skills and knowledge necessary to become a Commissioning Engineer.

Grade 1 Commissioning Engineers aims are to gain hands-on experience in the commissioning of building systems. They should be highly motivated, eager to learn, and possess excellent communication, organizational, and problem-solving skills. The goal of a Trainee Commissioning Engineer is to develop the skills and knowledge necessary to become a successful Commissioning Engineer, this occupation is found in and throughout the built environment sector, via supply chain MEP contractors and commissioning subcontractors.

Grade 1 Trainee commissioning engineers operate in a range of settings including the checking air and water measurement equipment to be used on the projects, the ability to learn and understand how the measuring equipment is used on the projects, understand the principal of pre-commissioning and the basics of commissioning systems. Site and office environments include industrial, commercial, residential, refurbishment, heritage, retail and public sector projects.

Key responsibilities of a Grade 1 Commissioning Engineer may include:

- Assisting senior Commissioning Engineers in conducting start-up and functional testing of HVAC systems and other building systems.
- Learning about the commissioning process and gaining experience with various commissioning tools and techniques.
- Participating in training sessions and workshops to develop technical knowledge and skills.
- Assisting in the preparation of commissioning reports and other documentation.
- Observing and learning from more senior Commissioning Engineers to develop an understanding of how to troubleshoot problems and resolve issues with building systems.

They may be employed by commissioning contracting companies, as well as a significant number of small and medium sized MEP/HVAC contractors and subcontractors such as building services companies, together with a host of other specialised construction areas such as Labs & Cleanrooms.

The broad purpose of the occupation is working in an exciting and dynamic environment which could be in an office or on a construction site at the heart of the organisations including versatile activities using digital processes to input test data. Grade 1 Trainee commissioning engineers within this specific career area are engaged to interpret, analyse, contribute, and directly assist commissioning engineers working with a wide range of project resources and documentation regularly interacting with internal and external customers.

Grade 1 Trainee commissioning engineers will develop a range of highly transferable knowledge, skills and behaviours that can be applied across a range of large and small MEP systems. In their daily work, an employee in this occupation interacts with professional and technical teams across different parts of the organisation, potentially on a range of sites or in an office environment.

Grade 1 Trainee commissioning engineers are responsible for supporting commissioning teams with pre-commissioning and commissioning works of HVAC systems including following engineer's instructions on adjustment of dampers and checking of index grilles, follow senior commissioning engineer's instructions on adjustment of valves, PICV settings and checking of index valves, assist with pre-commissioning of air systems and assist with pre-commissioning of water systems. Effectively recognising site hazards and safe working practices with thorough knowledge of relevant health, safety and environmental legislation to ensure compliance with company site procedures and processes.

Duties:

1	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Operatives or BESA Health & Safety Environment Course and Test
1.2	Internal company H&S induction (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep their company informed of any damaged PPE
1.5	Review RAMS for each project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.6	Working at Heights training completed by candidates' company
1.7	Manual Handling training completed by candidates' company
1.8	Asbestos Awareness training completed by candidates' company
2	Site Equipment Tools and Materials
2.1	Air Balancing Equipment
2.1.2	Must be able to carry, set up and handle equipment safely and gently
2.1.3	Must be able to set out a pitot tube rings and be able to drill traverse points at the appropriate locations and appropriate holes as per BSRIA BG49 Commissioning Air Systems
2.2	Water Balancing Equipment
2.2.1	Must be able to set up digital manometer & Ultrasonic Meter as per the manufacturer's recommendations
2.2.2	Must be able to understand readings given by equipment such as: U tube Manometer, digital manometer, Ultrasonic Meter
4	Off-site Performance
4.1	Must be able to assist with documentation building i.e. preparation of proforma test documentation.
5	Site Activities and Performance
5.1	Must follow site procedures for Entry & Exit to Site
5.2	Must report to client team daily, on arrival and before exiting site
5.3	Must be able to follow engineers' instructions on adjustment of dampers and checking of index grilles and open ends
5.4	Must be able to follow engineers' instructions on adjustment of valves, PICV settings and checking of index valves



5.5	Must be able to follow engineers' instructions on setting up and valves on any given system to suit the current PCC ready state (Backflush/forward flush)
5.6	Must be able to assist with pre-commissioning of air systems
5.7	Must be able to assist with pre-commissioning of water systems

Development Aim:

Aim	To participate fully in the Company and CSA training schemes with a view to completing Parts A of the Distance Learning Course of the Commissioning Specialists Association.
CSA Training Route	Via Specific DLC A Training Modules - with continual marking exercises for each individual module
End Point Assessment	Takes form of a Distance Learning Course Test. This sets the minimum standard of the Grade 1. Each candidate sits an invigilated exam.
EPA Award	Outcome of tests are Fail or Pass. Any candidate that fails exam is required to re-sit test within 3 months. Only those with Pass/Merit/Distinction and complying with PoD will be awarded Grade 1



2.1.3 Grade 2 – Intermediate Commissioning Engineer

Overview of the role:

Commissioning HVAC Systems on construction sites or other client buildings.

Typical job titles include:

Intermediate Commissioning engineer/Balancing Technician

Job Grade:

Grade 2

**Red
SKILLcard**

Experience:

Minimum 2 years proven commissioning experience with a recognised company/organisation and completion of DLC B and Grade 2 online exam. Or relevant NVQ Level 2 in Building or Allied Services with a minimum 3 years proven commissioning experience. Must comply with grade 2 job description.

Occupation summary:

This occupation is found in and throughout the built environment sector, via supply chain MEP contractors and commissioning subcontractors.

Grade 2 intermediate commissioning engineers operate in a range of settings including the commissioning/balancing of air and water HVAC systems, authoring detailed commissioning reports, reviewing project plans, checking calibration of equipment being used, creating defect reports while following the guidance of the senior commissioning engineer.

Grade 2 intermediate commissioning engineers will develop a range of highly transferable knowledge, skills and behaviours that can be applied across a range of large and small MEP systems. In their daily work, an employee in this occupation interacts with professional and technical teams across different parts of the organisation, potentially on a range of sites or in an office environment.

Grade 2 intermediate commissioning engineers are responsible for undertaking pre-commissioning and commissioning works of HVAC systems following the senior engineers' instructions to successfully pre-commissioning a HVAC system from the development of the system test packs, understanding the design data and assisting with the witnessing of commissioned systems to the client's team.

Site and office environments include industrial, commercial, residential, refurbishment, heritage, retail and public sector projects.

They may be employed by commissioning contracting companies, as well as a significant number of small and medium sized MEP/HVAC contractors and subcontractors such as building services companies, together with a host of other specialised construction areas such as Labs & Cleanrooms.

The broad purpose of the occupation is working in an exciting and dynamic environment which could be in an office or on a construction site at the heart of the organisations including versatile activities using digital processes to input test data. Grade 2 intermediate commissioning engineers within this specific career area are engaged to interpret, analyse, contribute, and directly assist senior commissioning engineers working with a wide range of project resources and documentation regularly interacting with internal and external customers.

Effectively recognising site hazards and safe working practices with thorough knowledge of relevant health, safety and environmental legislation to ensure compliance with company site procedures and processes.

Duties:

1	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Operatives or BESA Health & Safety Environment Course and Test
1.2	Internal company H&S induction - office (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep their company informed of any damaged PPE
1.4	Review RAMS for each project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.5	Working at Heights training completed by candidates' company
1.6	Manual Handling training completed by candidates' company
1.7	Asbestos Awareness training completed by candidates' company
1.8	MWEP & PASMA as required for duties on particular projects
2	Site Equipment Tools and Materials
2.1	Air Balancing Equipment
2.1.2	Must be able to carry, set up and handle equipment safely and gently
2.2	Water Balancing Equipment
2.2.1	Must be able to set up digital manometer & Ultrasonic Meter as per the manufacturer's recommendations
2.2.2	Must be able to set up and use U tube Manometer, digital manometer, Ultrasonic Meter
3	Test Sheets, Daily Report Sheets - Software
3.1	Must be able to use Excel & word documents proficiently in terms of Test Sheets and Daily Report Sheets
3.2	Must be proficient in creating site audit reports
4	Off-site Performance
4.1	Must be able to assist with documentation building
4.2	Must be able to create Air Balance Test Packs and cross reference to latest Schedules
4.3	Must be able to create Water Balance Test Packs and cross reference to latest Schedules
4.4	Must be able to draw schematics of system layout
4.6	Review & Plan Project requirements based on our scope of works
4.7	Ensure all test equipment being held has the 2-week Calibration Buffer
4.8	Ensure any new or exchanged test equipment is updated on the Master Equipment Register
5	Site Activities and Performance
5.1	Must follow site procedures for Entry & Exit to Site
5.2	Must report to client team daily, on arrival and before exiting site
5.3	Must be able to follow engineers' instructions on adjustment of dampers and checking of index grilles and open ends
5.4	Must be able to follow engineers' instructions on adjustment of valves, PICV settings and checking of index valves
5.5	Must be able to follow engineers' instructions on setting up and valves on any given system
5.6	Must be able to assist with pre-commissioning of air systems
5.7	Must be able to assist with pre-commissioning of water systems
5.8	Must understand the pre commissioning clean water treatment process
5.9	Must be able to create site defect report and issue internally to Engineer
5.10	Must be able to commission standard air systems (no VAV's) with guidance/supervision
5.11	Must be able to commission all air systems (CAV and VAV's) with guidance/supervision



5.12	Must be able to commission traditional water systems (no PICVS or DPCVs) with guidance/supervision
5.13	Must be able to commission all types of water systems (Including PICVS/ DPCVs) with guidance/supervision
5.14	Must be able to perform site survey of installed equipment in relation to scope of works - quantities of each system
5.15	Must be aware of Commissioning Programme for related scope of works
5.16	Undertake site surveys and review programme of works to identify any systems or additional works that is not included in the commissioning scope of works. Create a bullet point list and issue internally to Engineer
5.17	Must be able to fully complete Water Balancing Test Packs - Digital Based
5.18	Must be able to fully complete Air Balancing Test Packs - Digital Based
5.19	Must be able to fully complete Pre-Commissioning Test Packs - Digital Based
5.20	Must follow site instructions in accordance with line with Contractual Chain of Command
5.21	Must be able to demonstrate Water Balancing to client/client's representative/relevant authorities
6	Misc.
6.1	Must be able to carry out additional performance tests at site including Filter and coil performance testing.

Development Aim:

Aim	To participate fully in the Company and CSA training schemes with a view to completing Parts B of the Distance Learning Course and end off assessment Grade 2 online exam via the Commissioning Specialists Association.
CSA Training Route	Via Specific DLC B Training Modules - with continual marking exercises for each individual module
End Point Assessment	Takes form of a Distance Learning Course exam. This sets the minimum standard of the Grade 2. Each candidate sits an invigilated exam.
EPA Award	Outcome of tests are Fail or Pass. Any candidate that fails exam is required to re-sit test within 3 months. Only those with Pass/Merit/Distinction and complying with PoD will be awarded Grade 2



2.1.4 Grade 3 – Commissioning Technician

Overview of the role:

Commissioning HVAC Systems on construction sites or other client buildings.

Typical job titles include:

Commissioning Technician

Job Grade:

Grade 3

**Red
SKILLcard**

Experience:

Minimum 3.5 years proven commissioning experience with a recognised company/organisation, completion of DLC C and Grade 3 online exam. Or Relevant NVQ level 3 in Building or Allied Services with a minimum of 5 years commissioning experience and comply with grade 3 job description.

Occupation summary:

This occupation is found in and throughout the built environment sector, via supply chain MEP contractors and commissioning subcontractors.

Grade 3 commissioning technicians operate in a range of settings including complete project control of commissioning HVAC systems from the development of the initial test pack, reviewing design data, schedules, technical submittals, developing the associated RAMS, authoring detailed commissioning reports, reviewing project plans, checking calibration of equipment being used, creating defect reports, a grade 3 commissioning engineer must also assist in training and motivation of Trainees on site (those under your supervision), Trainees, Grades 1 & 2 and having the ability to demonstrate Air/Water Balancing to client/client's representative/relevant authorities.

Grade 3 commissioning technicians within this specific career area are engaged to interpret, analyse, contribute, and directly assist their clients in successfully commissioning the building services in line with the relevant codes of practice while complying with the employers' requirements.

Grade 3 commissioning technicians will develop a range of highly transferable knowledge, skills and behaviours that can be applied across a range of large and small MEP systems. In their daily work, an employee in this occupation interacts with professional and technical teams across different parts of the organisation, potentially on a range of sites or in an office environment.

They may be employed by commissioning contracting companies, as well as a significant number of small and medium sized MEP/HVAC contractors and subcontractors such as building services companies, together with a host of other specialised construction areas such as Labs & Cleanrooms.

Site and office environments include industrial, commercial, residential, refurbishment, heritage, retail and public sector projects.

The broad purpose of the occupation is working in an exciting and dynamic environment which could be in an office or on a construction site at the heart of the organisations including versatile activities using digital processes to input test data. Effectively recognising site hazards and safe working practices with thorough knowledge of relevant health, safety and environmental legislation to ensure compliance with company site procedures and processes.



Duties:

1	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Operatives or BESA Health & Safety Environment Course and Test
1.2	Internal company H&S induction - office (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep their company informed of any damaged PPE
1.4	Review RAMS for each project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.5	Working at Heights training completed by candidates' company
1.6	Manual Handling training completed by candidates' company
1.7	Asbestos Awareness training completed by candidates' company
1.8	MWEP & PASMA as required for duties on projects
2	Site Equipment Tools and Materials
2.1	Air Balancing Equipment
2.1.2	Must be able to carry, set up and handle equipment safely and gently
2.2	Water Balancing Equipment
2.2.1	Must be able to set up digital manometer & Ultrasonic Meter as per the manufacturer's recommendations
2.2.2	Must be able to set up and use U tube Manometer, digital manometer, Ultrasonic Meter
3	Test Sheets, Daily Report Sheets - Software
3.1	Must be able to use Excel & word documents proficiently in terms of Test Sheets and Daily Report Sheets
3.4	Must be proficient in creating Site Audit Reports and storing them online and offline
4	Off-site Performance
4.1	Must be able to assist with documentation building
4.2	Must be able to create Air Balance Test Packs and cross reference to latest Schedules
4.3	Must be able to create Water Balance Test Packs and cross reference to latest Schedules
4.4	Must be able to draw HVAC schematics of system layout
4.6	Review & Plan Project requirements based on our scope of works
4.7	Ensure all test equipment being held has the 2-week Calibration Buffer
4.8	Ensure any new or exchanged test equipment is updated on the Master Equipment Register
5	Site Activities and Performance
5.1	Must follow site procedures for Entry & Exit to Site
5.2	Must report to client team daily, on arrival and before exiting site
5.3	Must be able to follow engineers' instructions on adjustment of dampers and checking of index grilles and open ends
5.4	Must be able to follow engineers' instructions on adjustment of valves, PICV settings and checking of index valves
5.5	Must be able to follow engineers' instructions on setting up and valves on any given system to suit the current PCC ready state (Backflush/forward flush)
5.6	Must fill in site diary daily. This diary should include progress reports and record of Site Instructions references for deviations or additions to contracted scope of works.
5.7	Must be able to assist with pre-commissioning of air systems
5.8	Must be able to assist with pre-commissioning of water systems
5.9	Must understand the pre commissioning clean water treatment process
5.10	Must be able to create site defect report and issue internally to Engineer
5.11	Must be able to create site defect report and issue to Client



5.12	Must be able to commission standard air systems (no VAV's) - no guidance/supervision
5.13	Must be able to assist full AHU TESTING (Start-up/Duty/Standby/Optimisation/Dirty Filter Simulation)
5.14	Must be able to commission all air systems (CAV and VAV's) - no guidance/supervision
5.15	Must be able to commission traditional water systems (no PICVS or DPCVs) - no guidance/supervision
5.16	Must be able to commission all types of water systems (Including PICVS/ DPCVs) - no guidance/supervision
5.17	Must be able to assist full PUMP TESTING (Start-up/Duty/Standby/Closed Head Testing/Optimisation)
5.18	Must be able to perform site survey of installed equipment in relation to scope of works - quantities of each system
5.19	Must be able to perform site survey of installed equipment in relation to scope of works - Commissionability of each system
5.20	Must be aware of Commissioning Programme for related scope of works
5.21	Undertake site surveys and review programme of works to identify any systems or additional works that is not included in the commissioning scope of works. Create a bullet point list and issue internally to Engineer
5.22	Must be able to fully complete Water Balancing Test Packs - Digital Based
5.23	Must be able to fully complete Air Balancing Test Packs - Digital based
5.24	Must follow site instructions in accordance with line with Contractual Chain of Command
5.25	Must be able to demonstrate Water Balancing to client/client's representative/relevant authorities
6	Misc.
6.1	Assist in training and motivation of Trainees on site (those under your supervision), Trainees, Grades 1 & 2
6.2	To liaise directly with the client and or client's representative
6.3	Liaise with Head Office daily on-site progress
6.4	To be competent to work on site without supervision and take charge of other site personnel in relation to commissioning systems
6.5	Must be fully aware of latest electrical regulations
6.6	Must be able to carry out additional performance tests site including Filter and coil performance testing, room temperature checks, ventilation temperature and pressure mapping.
6.7	Setting up and obtaining information from data loggers, including exporting graphs within specific date ranges.

Development Aim:

Aim	To participate fully in the Company and CSA training schemes with a view to completing Parts C of the Distance Learning Course of the Commissioning Specialists Association.
CSA Training Route	Via Specific DLC C Training Modules - with continual marking exercises for each individual module
End Point Assessment	Takes form of a Distance Learning Course Test. This sets the minimum standard of the Grade 3. Each candidate sits an invigilated exam.
EPA Award	Outcome of tests are Fail or Pass. Any candidate that fails exam is required to re-sit test within 3 months. Only those with Pass/Merit/Distinction and complying with PoD will be awarded Grade 3



2.1.5 Grade 4 – Commissioning Engineer

Overview of the role:

Commissioning HVAC Systems on construction sites or other client buildings.

Typical job titles include:

Commissioning Engineer

Job Grade:

Grade 4

**Blue
SKILLcard**

Experience:

Minimum of 5 years proven commissioning experience with a recognised company/organisation, pass the grade 4 technical and theory examination and comply with grade 4 job description. Or NVQ 4 in Building and Allied Services with a minimum of 7 years proven commissioning experience, must pass grade 4 technical and theory examination and comply with grade 4 description.

Occupation summary:

This occupation is found in and throughout the built environment sector, via supply chain MEP contractors and commissioning subcontractors.

The Commissioning Engineer is responsible for ensuring that mechanical systems in buildings and industrial facilities are designed, installed, and tested to meet specific requirements and perform effectively. They play a crucial role in ensuring the proper functioning of HVAC systems, electrical systems, and other building systems.

Key responsibilities of a Commissioning Engineer include:

Reviewing design drawings, specifications, and equipment schedules to ensure that the systems are installed and configured according to the design.

Conducting start-up and functional testing of each component of the systems to ensure that they operate properly and meet the design specifications.

Measuring the actual performance of the systems under various conditions to ensure that they meet the design requirements and energy-efficiency standards.

Preparing commissioning reports that summarize the results of the commissioning process and recommend any necessary improvements or modifications to the systems.

Collaborating with design engineers, contractors, and facility managers to ensure that commissioning objectives are met, and any issues are resolved.

Grade 4 Commissioning Engineer shall have several years of experience in the commissioning of building systems. They should have a strong understanding of HVAC and an understanding of electrical systems, as well as industry standards and regulations. Additionally, they should possess excellent problem-solving, communication, and organizational skills.



Grade 4 commissioning engineers operate in a range of settings including complete project control of commissioning HVAC systems from the development of the initial test pack, reviewing design data, schedules, technical submittals, developing the associated RAMS, authoring detailed commissioning reports, reviewing project plans, checking calibration of equipment being used, creating defect reports, a grade 4 commissioning engineer must also assist in training and motivation of Trainees on site (those under your supervision), Trainees, Grades 1 - 3 and having the ability to demonstrate Air/Water Balancing to client/client's representative/relevant authorities.

Grade 4 commissioning engineers within this specific career area are engaged to interpret, analyse, contribute, and directly assist their clients in successfully commissioning the building services in line with the relevant codes of practice while complying with the employers' requirements.

Grade 4 commissioning engineers will develop a range of highly transferable knowledge, skills and behaviours that can be applied across a range of large and small MEP systems. In their daily work, an employee in this occupation interacts with professional and technical teams across different parts of the organisation, potentially on a range of sites or in an office environment.

They may be employed by commissioning contracting companies, as well as a significant number of small and medium sized MEP/HVAC contractors and subcontractors such as building services companies, together with a host of other specialised construction areas such as Labs & Cleanrooms.

Site and office environments include industrial, commercial, residential, refurbishment, heritage, retail and public sector projects.

The broad purpose of the occupation is working in an exciting and dynamic environment which could be in an office or on a construction site at the heart of the organisations including versatile activities using digital processes to input test data. Effectively recognising site hazards and safe working practices with thorough knowledge of relevant health, safety and environmental legislation to ensure compliance with company site procedures and processes.

Duties:

1	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Operatives or BESA Health & Safety Environment Course and Test
1.2	Internal H&S induction - office (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep company informed of any damaged PPE
1.5	Review RAMS for Each Project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.5	Working at Heights training completed by candidates' company
1.6	Manual Handling training completed by candidates' company
1.7	Asbestos Awareness training completed by candidates' company
1.8	Carry out site walkdown of new projects and carry out risk assessment for all systems under the company's scope of work. Distribute this to form the latest RA part of the RAMS.
1.9	Perform toolbox talks every week on projects
2	Site Equipment Tools and Materials
2.1	Air Balancing Equipment
2.1.1	Must be competent in the use of all air measuring equipment used to commission ventilation systems
2.2	Water Balancing Equipment
2.2.1	Must be competent in the use of all water measuring equipment used to commission wet systems



3	Test Sheets, Daily Report Sheets - Software
3.1	Must be able to use Excel & word documents proficiently in terms of Test Sheets and Daily Report Sheets
3.2	Must be able to use PDF documentation
3.3	Must be able to navigate remotely for project information using Online Platforms
3.4	Must be proficient in creating site audit reports and storing them online and offline
4	Off-site Performance
4.1	Must be able to assist with documentation building
4.2	Must be able to create Air Balance Test Packs and cross reference to latest Schedules
4.3	Must be able to create Water Balance Test Packs and cross reference to latest Schedules
4.4	Must be able to draw schematics of system layout
4.6	Review & Plan Project requirements based on our scope of works
4.7	Ensure all test equipment being held has the 2-week Calibration Buffer
4.8	Ensure any new or exchanged test equipment is updated on the Master Equipment Register
5	Site Activities and Performance
5.1	Must follow site procedures for Entry & Exit to Site
5.2	Must report to client team daily, on arrival and before exiting site
5.2	Must be able to digest Off-site "Review & Plan Project requirements based on our scope of works" and ensure you have adequate resources and equipment to meet the commissioning programme
5.3	Must inform line manager/supervisor of any significant changes to the programme to allow sufficient time to increase/decrease resource requirements
5.4	Assist company management to achieve successful project completion
5.5	Must be able to follow engineers' instructions on adjustment of dampers and checking of index grilles and open ends
5.6	Must be able to follow engineers' instructions on adjustment of valves, PICV settings and checking of index valves
5.7	Must be able to follow engineers' instructions on setting up and valves on any given system to suit the current PCC ready state (Backflush/forward flush)
5.8	Must fill in site diary daily. This diary should include progress reports and record of Site Instructions references for deviations or additions to contracted scope of works.
5.9	Must be able to assist with pre-commissioning of air systems
5.10	Must be able to assist with pre-commissioning of water systems
5.11	Must be able to assist with PCC systems
5.12	Must be able to create site defect report and issue internally to Engineer
5.13	Must be able to create site defect report and issue to Client
5.14	Must be able to commission standard air systems (no VAV's)
5.15	Must be able to perform full AHU TESTING (Start-up/Duty/Standby/Optimisation/Dirty Filter Simulation)
5.16	Must be able to commission all air systems (CAV and VAV's)
5.17	Must be able to commission traditional water systems (no PICVS or DPCVs)
5.18	Must be able to commission all types of water systems (Including PICVS/ DPCVs)
5.19	Must be able to assist full PUMP TESTING (Start-up/Duty/Standby/Closed Head Testing/Optimisation)
5.20	Must be able to perform site survey of installed equipment in relation to scope of works - quantities of each system
5.21	Must be able to perform site survey of installed equipment in relation to scope of works - Commissionability of each system



5.22	Must be aware of Commissioning Programme for related scope of works
5.23	Undertake site surveys and review programme of works to identify any systems or additional works that is not included in the commissioning scope of works. Create a bullet point list and issue to client
5.24	Must be able to fully complete Water Balancing Test Packs - Digital Based
5.25	Must be able to fully complete Air Balancing Test Packs - Digital Based
5.26	Must be able to fully complete Pre-Commission Clean Test Packs - Digital Based
5.27	Must follow site instructions in accordance & in line with Contractual Chain of Command
5.28	Must be able to demonstrate Water Balancing to client/client's representative/relevant authorities
5.29	Must be able to liaise with specialist companies and other trades at site in relation to access and system availability
5.30	To witness test Static completion certs (from specialist installer) and create completion certificate at the end of system commissioning including handover/sign-off for each individual system
5.31	Must be able to delegate the commissioning of HVAC systems to G1 to G3's engineers in line with their abilities and skillset
5.32	To fully understand the Project Management Structure
6	Misc.
6.1	Assist in training and motivation of Trainees on site (those under your supervision), Trainees, Grades 1 - 3
6.2	Actively encourage Grade 1-3's and motivate and assist their development and training
6.3	To liaise directly with the client and or client's representative
6.4	Liaise with Head Office daily on-site progress
6.5	To be competent to work on site without supervision and take charge of other site personnel in relation to commissioning systems
6.6	Must be fully aware of latest electrical regulations
7.0	Must be able to carry out additional performance tests site including:
7.1	Room temperature checks.
7.2	Ventilation temperature and pressure mapping.
7.3	Setting up and obtaining information from data loggers, including exporting graphs within specific date ranges.

Development Aim:

Aim	To be aware of and research changes within the industry. Develop and promote good working practices and man management skills. To undertake continual professional development and be competent at commissioning all aspects of building services.
CSA Training Route	Via a combination of Distance Learning Courses A, B & C and Professional Development on and off site
End Point Assessment	Via the Grade 4 Technical and Theoretical Examination. This sets the minimum standard of the Grade 4. Each candidate sits an invigilated exam.
EPA Award	Outcome of tests are Fail or Pass. Only those candidates that pass both the theoretical and technical exam with a Pass and complying with PoD will be awarded Grade 4



2.1.6 Grade 5 – Senior Commissioning Engineer

Overview of the role:

Commissioning HVAC Systems on construction sites or other client buildings.

Typical job titles include:

Senior Commissioning Engineer

Job Grade:

Grade 5

**Gold
SKILLcard**

Experience:

Minimum 8 years proven commissioning experience with a recognised company/organisation, must have passed grade 4 technical and theory examination, must complete grade 5 Assessment Criteria and comply with grade 5 job description.

Occupation summary:

This occupation is found in and throughout the built environment sector, via supply chain MEP contractors and commissioning subcontractors.

Grade 5 senior commissioning engineers operate in a range of settings including complete project control of commissioning HVAC systems from the development of the initial test pack, reviewing design data, schedules, technical submittals, developing the associated RAMS, authoring detailed commissioning reports, reviewing project plans, checking calibration of equipment being used, creating defect reports, a grade 5 commissioning engineer must also assist in training and motivation of trainees on site (those under your supervision), (Trainees, Grades 1 – 4) and having the ability to attend client commissioning meetings with a full understanding of the required commissioning codes.

Grade 5 senior commissioning engineers within this specific career area are engaged to interpret, analyse, contribute, and directly assist their clients in successfully commissioning the building services in line with the relevant codes of practice while complying with the employers' requirements.

Grade 5 senior commissioning engineers will develop a range of highly transferable knowledge, skills and behaviours that can be applied across a range of large and small MEP systems. In their daily work, an employee in this occupation interacts with professional and technical teams across different parts of the organisation, potentially on a range of sites or in an office environment.

They may be employed by commissioning contracting companies, as well as a significant number of small and medium sized MEP/HVAC contractors and subcontractors such as building services companies, together with a host of other specialised construction areas such as Labs & Cleanrooms.

Site and office environments include industrial, commercial, residential, refurbishment, heritage, retail and public sector projects.

The broad purpose of the occupation is working in an exciting and dynamic environment which could be in an office or on a construction site at the heart of the organisations including versatile activities using digital processes to input test data.

Effectively recognising site hazards and safe working practices with thorough knowledge of relevant health, safety and environmental legislation to ensure compliance with company site procedures and processes.



Duties:

1	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Managers and Professionals or CITB Supervisory HSE test
1.2	Internal H&S induction - office (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep company informed of any damaged PPE
1.5	Review RAMS for Each Project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.6	Carry out site walkdown of new projects and carry out risk assessment for all systems under the company's scope of work. Distribute this to form the latest RA part of the RAMS.
1.7	Working at Heights training completed by candidates' company
1.8	Manual Handling training completed by candidates' company
1.9	Asbestos Awareness training completed by candidates' company
1.10	Follow-up with RAMS submission and obtain all necessary approvals using the projects document management system
1.11	Perform toolbox talks every week on projects
2	Site Equipment Tools and Materials
2.1	Air Balancing Equipment
2.2	Must be competent in the use of all air measuring equipment used to commission ventilation systems
2.3	Water Balancing Equipment
2.4	Must be competent in the use of all water measuring equipment used to commission wet systems
3	Test Sheets, Daily Report Sheets - Office Software
3.1	Must be able to use Excel & word documents proficiently in terms of Test Sheets and Daily Report Sheets
3.2	Must be able to use PDF documentation
3.3	Must be able to navigate to/from server remotely for project information using Online Platforms
3.4	Must be proficient in creating Site-Audit Pro Reports and storing them online and offline
3.5	Must be able to use Excel proficiently in terms of our Commissioning Programme - Being able to create, maintain and forecast performance and be able import/export dates from and to the main construction programme
4	Off-site Performance
4.1	Must be able to assist with documentation building
4.2	Must be able to create Air Balance Test Packs and cross reference to latest Schedules
4.3	Must be able to create Water Balance Test Packs and cross reference to latest Schedules
4.4	Must be able to draw schematics of system layout
4.5	Must fully understand drawings, specifications and contractual commitments for the project
4.6	Review & Plan Project requirements based on our scope of works
4.7	Ensure all test equipment being held has the 2-week Calibration Buffer
4.8	Ensure any new or exchanged test equipment is updated on the Master Equipment Register at HO
4.9	Must be able to perform Commissionability PoV of each system installed on project, including producing a technical report, holding discussions with design teams and obtaining approvals of the same
5	Site Activities and Performance
5.1	Must follow site procedures for Entry & Exit to Site



5.2	Must report to client team daily, on arrival and before exiting site
5.3	Must be able to set-up site facilities for all G1-G4's security and general tidiness and preparation of all site reports - including site storage boxes and temporary office area
5.4	Must be able to digest Off-site "Review & Plan Project requirements based on our scope of works" and ensure you have adequate resources and equipment to meet the commissioning programme
5.5	Must inform manager/supervisor of any significant changes to the programme to allow sufficient time to increase/decrease resource requirements
5.6	Must understand and apply the requirements for correct instrumentation in checking and witnessing specialists work
5.7	Must be familiar with refrigeration, electrical and control disciplines in order to discuss, control, inspect, witness and accept the works of these specialists on behalf of your employer when required
5.8	Must be able to evaluate the technical aspects of method statements for specialists within your control
5.9	Assist company management to achieve successful project completion
5.10	Must fill in site diary daily & issue at end of each day a copy to Client, to Office and to Accounts Dept. This diary should include progress reports and record of Site Instructions references for deviations or additions to contracted scope of works.
5.11	Must be able to create site defect report and issue to Client
5.12	Must be able to perform full AHU TESTING (Start-up/Duty/Standby/Optimisation/Dirty Filter Simulation)
5.13	Must be able to commission all air systems (CAV and VAV's)
5.14	Must be able to commission all types of water systems (Including PICVS/ DPCVs)
5.16	Must be able to assist full PUMP TESTING (Start-up/Duty/Standby/Closed Head Testing/Optimisation)
5.17	Must be able to perform full PUMP TESTING (Start-up/Duty/Standby/Closed Head Testing/Optimisation)
5.18	Must be able to perform site survey of installed equipment in relation to scope of works - quantities of each system
5.19	Must be able to perform site survey of installed equipment in relation to scope of works - Commissionability PoV of each system
5.20	Must be aware of Comm Programme for related scope of works
5.21	Must monitor and record progress of commissioning activities and record any delays accordingly. Also to record progress of electrical progress and installation progress that may impact on commissioning progress.
5.22	Must ensure the correct commissioning procedures (and site procedures) are being followed for at all times
5.23	Must be able to fully complete Water Balancing Test Packs - Digital Based
5.24	Must be able to fully complete Air Balancing Test Packs - Digital Based
5.25	Must follow site instructions in accordance with line with Contractual Chain of Command
5.26	Must be able to demonstrate Water Balancing to client/client's representative/relevant authorities
5.27	Must be able to liaise with specialist companies and other trades at site in relation to access and system availability
5.28	To witness test Static completion certs (from specialist installer or client to us) and create completion certificate at the end of system commissioning including handover/sign-off for each individual system
5.29	Must be able to delegate systems to G1 to G3's in line with their abilities and skillset
5.30	To fully understand the Project Management Structure
6	Misc.
6.1	Must have good verbal skills - client discussions and site meetings
6.2	Must have good day-to-day management skills



6.3	Must have good report writing skills (technical)
6.4	Must have good planning skills
6.5	Assist in training and motivation of Trainees on site (those under your supervision), Trainees, Grades 1 & 2
6.6	Actively encourage Grade 1-3's and motivate and assist their development and training
6.7	To liaise directly with the client and or client's representative
6.8	Liaise with Head Office daily on-site progress
6.9	To be competent to work on site without supervision and take charge of other site personnel in relation to commissioning systems
6.10	Must be fully aware of latest electrical regulations
7.0	Must be able to carry out additional performance tests site including
7.1	room temperature checks,
7.2	ventilation temperature and pressure mapping,
7.3	setting up and obtaining information from data loggers, including exporting graphs within specific date ranges
7.4	Must have detailed working knowledge of all specialist activities in commissioning - including pressure control, air change rates, pressure cascades, BEMS.

Development Aim:

Aim	To be aware of and research changes within the industry. Develop and promote good working practices and man management skills. To undertake continual professional development and be competent at commissioning all aspects of building services. To be capable of developing and presenting a thesis to meet the requirements for progression to Commissioning Specialists Association Grade 5.
CSA Training Route	Via previous Grade 4 exam, Professional Development on and off site
End Point Assessment	Via the Commissioning Process (witnessed document proof) and New Grade 5 Thesis. Candidate must demonstrate professional understanding, technical knowledge and writing skills. This sets the minimum standard of the Grade 5. Each candidate must submit a Grade 5 Thesis.
EPA Award	Outcome of tests are Fail & Rewrite, Pass with Comment or Pass with recommendation for consideration for website display. Only those candidates that meet all markers criteria will be awarded Grade 5



2.2 CSA Water Treatment Grades

2.2.1 Trainee - Water Treatment Trainee - Red SKILLcard

T1.1 – New Starter Requirement: to comply with the Trainee competencies below in the first 6 months probationary period.

T1.2 – Technical competencies

The trainee must: -

1. Keep a daily diary of your activities.
2. Report to lead engineer when arriving and leaving site.
3. Become familiar with site safety and current Health and Safety at Work Regulations
4. Read and understand your company's H&S policy and be aware of the requirement for safety for yourself and others.
5. Understand and comply with your company's method statement.
6. Assist more senior personnel in conducting Water Treatment activities on site.
7. Learn about the instruments and test equipment used on site, how to handle correctly and look after them.
8. To become familiar with your company's test documentation and understand the units, calculations, requirements etc.
9. Undertake and comply with the company's training policy.
10. Learn site discipline and procedures.
11. Learn and understand differential pressure drops and flow rates using correct terminology.
12. Learn and understand the correct use and tests using an on-site test kit.
13. Understand the water treatment process and sequences that are conducted at a site level.



2.2.2 Grade 1 – Water Treatment Assistant - Red SKILLcard

G1.1 – Experience requirement

To successfully pass your Grade 1 you will need:

Via DLC Pathway: to comply with the Grade 1 competencies below and a minimum of **12 months proven water treatment experience** with a recognised company/organisation. **Must pass the WT DLC A test.**

Via Academic Entry: to comply with the Grade 1 competencies below and a minimum of **18 months proven water treatment experience** with a recognised company/organisation.

G1.2 – Technical competencies

The Assistant must: -

1. Have completed trainee competencies (company set)
2. Keep a daily diary of your activities, works undertaken, systems worked on etc.
3. Understand the current Health and Safety at Work Regulations and be aware of the requirements of site safety for yourself and others.
4. Understand and comply with your company's method statement.
5. Assist more senior personnel in carrying out Water Treatment activities on site and observe instructions given by an authorised person.
6. Have a full understanding of the instruments and test equipment used on site, know what kit is appropriate for each activity and how to use and read them.
7. Assist with the production of your company's test packs with information provided by your Engineer.
8. Become familiar with working drawings and job technical specifications.
9. Understand basic systems and be able to read their schematics.
10. Have a basic knowledge of closed & domestic systems, their plant and function.
11. Become familiar with BSRIA BG29 (Pre-commission cleaning guide) processes.
12. Understand the reasons for the various system chemicals.
13. Have an awareness of chemical and microbiological parameters.
14. Be able to backflush terminal coils under supervision.
15. Be able to carry out demonstration of systems under supervision.
16. Be aware of the programme of work you are trying to achieve.
17. Become familiar with BS8552 processes and equipment used.
18. Be able to carry out sampling to BS8552 under supervision.
19. Have a basic understanding of tank cleans with associated disinfections.
20. Have a basic understanding of pipework distribution system disinfections.



2.2.3 Grade 2 - Water Treatment Intermediate Technician - Red SKILLcard

G2.1 – Experience requirement

To successfully pass your Grade 2 you will need:

Via DLC Pathway: to comply with the Grade 2 technical competencies below and a minimum of **2 years proven water treatment experience** with a recognised company/organisation. **Must pass the WT DLC B test.**

Via Academic Entry: to comply with the Grade 2 technical competencies below and a minimum of **3 years proven water treatment experience** with a recognised company/organisation.

G2.2 – Technical Competencies

The Intermediate Technician must: -

1. Have completed Grade 1 competencies.
2. Keep a daily diary of events under your control including trainees and Grade 1's working under your direction.
3. Have a full understanding of current Health and Safety at Work Regulations and be aware of the requirements of site safety for yourself and others.
4. Fully understand and implement your company's method statement.
5. Carry out regular checks of equipment and test instruments held onsite and ensure in good working order, in date (reagents etc.) and calibration certs are current where required.
6. Produce your company's test packs from information collated on-site with assistance provided by your Engineer.
7. Have a full understanding of system schematics.
8. Have a good understanding of closed & domestic water systems, their plant and function.
9. Understand the onsite processes carried out in BSRIA BG29 (Pre-commission cleaning guide)
10. Have a full understanding of chemicals and dosage rates used in both closed and domestic systems.
11. Have a basic understanding of BSRIA BG29 (Pre-commission cleaning guide) chemical and microbiological parameters for both 7 day and monitoring samples.
12. Have a full understanding of on-site parameter testing during the dosing process.
13. Be able to carry out flushing of systems/small projects under supervision.
14. Be able to carry out demonstration of systems without supervision.
15. Be able to work to the project programme and record/report progress.
16. Understand the onsite processes carried out in accordance with BS 8552
17. Carry out sampling to BS 8552 without supervision.
18. Have a full understanding of tank cleans with associated disinfections.
19. Have a full understanding of pipework distribution systems disinfection.
20. Take charge of others on appropriate contracts
21. Assist in the training and motivation of trainees under your supervision.
22. Learn to identify additional work over and above your agreed contractual commitment.
23. Follow company procedures for carrying out additional work.
24. Liaise with your line manager on any issues, delays, concerns, snags etc. and to record/report using company procedures.



2.2.4 Grade 3 - Water Treatment Technician - Blue SKILLcard

G.3.1 – Experience requirement

To successfully pass your Grade 3 you will need:

Via DLC Pathway: to comply with the Grade 3 technical competencies below and a minimum of **3 years proven water treatment experience** with a recognised company/organisation. **Must pass the WT DLC C test.**

Via Academic Entry: to comply with the Grade 3 technical competencies below and a minimum of **5 years proven water treatment experience** with a recognised company/organisation.

G.3.2 – Technical Competencies

The Technician must: -

1. Have completed Grade 2 competencies.
2. Keep a daily diary of events under your control including staff working under your direction, decisions made by authorities on site which may affect progress. Record on-site delays and reasons for them.
3. Be responsible for all aspects of site safety for yourself and others.
4. Highlight and amend project specific method statements for re-approval and hold toolbox talks.
5. Be mindful and responsible in managing equipment and test instruments whilst on site.
6. Be aware and have a basic understanding of electrical safety and safe systems of work.
7. Be able to collate design information and produce Your company's test packs.
8. Be skilled in detailed report writing.
9. Have a full understanding of BSRIA guide/relevant standards.
10. Carry out pre-start assessments.
11. Be able to advise on system installation requirements that you are working on.
12. Be able to run small projects and manage multiple teams.
13. Be able to organise all required equipment and chemicals to carry out the job.
14. Be able to identify and overcome issues relating to the water treatment processes.
15. Be able to carry out flushing/demonstration of large systems on larger projects under supervision.
16. Delegate works to others appropriate to their grading and capability.
17. Have a full understanding of BS8552 standard.
18. Understand chemical and microbiological parameters and the reasons for failures and possible remedial action.
19. Advise, mentor and motivate assistants and trainees - lead by example.
20. Liaise with the client/consultant and fully understand their comments and position.
21. Advise on impact and implications of changes to the systems, methods, programme etc.
22. Identify additional work over and above your agreed contractual commitment and follow company procedures for carrying it out.



2.2.5 Grade 4 - Water Treatment Engineer - Blue SKILLcard

G4.1 – Experience requirement

Via DLC Pathway: to comply with the Grade 4 technical competencies below and a minimum of **5 years proven water treatment experience** with a recognised company/organisation.

Via Academic Entry: to comply with the Grade 4 technical competencies below and a minimum of **7 years proven water treatment experience** with a recognised company/organisation.

You will be required to pass the CSA's Water Treatment Grade 4 Technical & Theoretical Examinations.

G4.2 – Technical Competencies

The Engineer must: -

1. Have completed Grade 3 competencies.
2. Keep a daily diary of events under your control including a list of specialists on site, staff working under your direction and any decisions made by authorities on site which may affect progress. Record delays and reasons for them.
3. To be responsible for all aspects of site safety for yourself and others including implementing risk assessment, method statements and toolbox talks.
4. Produce project specific method statements and obtain approval.
5. Be skilled in detailed report writing, planning and programming.
6. Monitor and record progress of all other trades which directly or indirectly affect water treatment activities.
7. Carry out pre-work site visits, providing advice and reporting on flushing and cleaning facilities and requirements.
8. Assess and advise on design and installation of closed systems from a water treatment perspective.
9. Be able to carry out flushing/demonstration of large complex systems on major projects without supervision.
10. Be able to identify and overcome complex issues relating to the water treatment processes.
11. Be able to run larger scale projects and manage multiple teams.
12. Have full understanding of chemical and microbiological parameters and the reasons for failures and remedial action.
13. Liaise with the client/consultant at higher levels and represent WT company at meetings.
14. Be fully aware of Your company's policies in respect of contractual commitments.
15. To have a working knowledge of all specialist activities associated with flushing and water treatment.
16. Advise, mentor and motivate all staff under your supervision - lead by example.



2.2.6 Grade 5 - Senior Water Treatment Engineer - Gold SKILLcard

G5.1 – Experience requirement

At Grade 5 and beyond all experience requirements are identical on DLC & Academic pathway.

DLC & Academic Pathways: A minimum of 8 years proven water treatment experience with a recognised company/organisation. To successfully pass your Grade 5 you will need to comply with the Grade 5 competencies below.

Must submit a 2500–3000-word thesis and have this approved by Assessment Panel within 6 months of submission.

G5.2 – Technical competencies

The Senior Engineer must: -

1. Have completed Grade 4 competencies.
2. To be responsible, on behalf of Company, to our clients for all site activities within the scope of the contract on major projects. Able to deal with all financial aspects of the contract.
3. To agree documentation requirements and standards
4. To evaluate labour requirements against the programme and tender submissions
5. To be skilled in written and verbal communication and people management
6. To recognise strengths and weaknesses in those to whom you delegate work to form an effective team.
7. To respond to changes in requirements objectively
8. To identify all designs data and ensure adherence to specific standards.
9. To recognise your own abilities and to know when to call for assistance when dealing with matters that fall beyond your experience.
10. To produce Water Treatment completion certificates, reports, water sample progress schedule to the satisfaction of Company and clients.
11. To review and evaluate contracts to minimise time taken on site, ensuring client satisfaction at the end of the contract and maximise Company efficiency.



2.3 CSA Management Grades

2.3.1 Grade 6/CM1 – Commissioning Manager

Overview of the role:

Commissioning management of MEP Systems on construction sites or other client buildings.

Typical job titles include:

Commissioning Manager, CSA CM1 Commissioning Manager /Grade 6

Job Grade:

CM1/Grade 6

**Black
SKILLcard**

Experience:

1 to 3 years Commissioning Management experience with a recognised company/organisation. Must have completed a minimum of 1 commissioning management project and provide CV and references from 2 clients. Submit 2000–2500-word commissioning management dissertation report, sit an online interview and attend 2-day Introduction to Commissioning management Course.

- Bachelor's degree in mechanical, electrical, or building services engineering or a related field. (Optional)
- A minimum of 1-3 years of experience in the building services industry, with a focus on M&E commissioning.
- Strong technical knowledge of building services systems, including HVAC, plumbing, fire protection, and electrical systems.
- Basic understanding of project management principles and the commissioning process.
- Strong communication and interpersonal skills, with the ability to work effectively as part of a team.
- A commitment to health and safety, with a thorough understanding of relevant regulations and best practices.
- Ability to work independently and in a team-oriented, collaborative environment.
- Strong analytical and problem-solving skills, with the ability to learn quickly and take initiative.

Occupation summary:

The CM1 Commissioning Manager will be responsible for supporting the commissioning process of projects to ensure the successful delivery of high-quality, safe, and efficient systems to clients. A successful CM1 Commissioning Manager will have a strong technical background and an understanding of project management principles and will be responsible for ensuring that commissioning activities are carried out in accordance with relevant codes, standards, and project specifications.

Key Responsibilities:

- Support the commissioning team in the development and implementation of commissioning plans and procedures.
- Assist with the witness testing and commissioning of mechanical, electrical, and plumbing systems to ensure compliance with relevant codes, standards, and project specifications.



- Prepare and maintain commissioning documentation, including test plans, commissioning reports, and as-built drawings.
- Work with project managers, engineers, contractors, and clients to ensure project timelines and budgets are met.
- Ensure that safety is a top priority and that all commissioning activities are carried out in accordance with relevant health and safety regulations.
- Participate in continuous improvement initiatives to ensure the delivery of high-quality, efficient systems.
- Attend site meetings and report back to the client.
- Undertake any other duties as assigned by the CM2 Senior Commissioning Manager/ CM3 Project Commissioning Manager.
- To manage and oversee projects in terms of Commissioning Management / Verification.
- To ensure projects meet the client's expectations in terms of project programme, compliance, quality, and safety.

Experience required in.

- Reviewing MEP design and producing an associated Commissionability report
- Production of commissioning plans and strategies
- Chairing of commissioning meetings with associated minutes
- Production and management of commissioning programmes
- Reviewing and commenting on M&E commissioning method statements
- Production and management of progress of tracking schedules
- Production and issuing of progress reports
- Management and witnessing of Mechanical and Electrical static testing.
- Management and witnessing of Mechanical and Electrical functional testing.
- Management and coordination of cause and effect and integrated system testing
- Management of project handover
- Producing commissioning completion reports
- Competent level of computer skills including Microsoft suite of products used throughout the industry.

Duties:

1.0	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Managers and Professionals or CITB Supervisory HSE test
1.2	Complete internal H&S induction (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep company informed of any damaged PPE
1.5	Review RAMS for Each Project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.6	Carry out site walkdown of new projects and carry out risk assessment for all systems under the company's scope of work. Distribute this to form the latest RA part of the RAMS.
1.7	Working at Heights training completed by candidates' company
1.8	Asbestos Awareness training completed by candidates' company
1.9	Follow-up with RAMS submission and obtain all necessary approvals using the projects document management system



1.10	Perform toolbox talks relating to the commissioning that is being undertaken on the project, delivering to project team members and commissioning staff under their control (CM2 & 3 Only)
2.0	Preparation and Briefing Stage
2.1	Review and understand the Project brief / specifications concerning commissioning
2.2	Identify the performance outcomes required by the client and ultimate end- users.
2.3	Produce a client brief document that clearly describes the performance outcomes expected for the project
2.4	Determine the commissioning scope and budget
2.5	Review commissioning related tenders and provide feedback on the included scope/budget
2.6	Have a full understanding of CIBSE Code M 2021
3.0	Design Stage
3.1	Led by a CM2 or CM3 commissioning manager, form a commissioning team appropriate to the size and complexity of the project being undertaken. CM1 to assist senior commissioning managers
3.2	Produce a Roles and Responsibilities matrix for the commissioning team and systems to be commissioned
3.3	Review commissioning lessons learned from past similar projects / clients' lessons learned
3.4	Produce the design-stage Commissioning Plan
3.5	In accordance with the Building Regulations 2010, ensure the Commissioning Plan is issued to the Project Manager/Main Contractor and the Building Control Body (BCB)
3.6	Create the Commissioning Specification
3.7	Produce a Commissioning Cost Plan (CM3 Only) CM1/2 to assist senior commissioning managers.
3.8	Programme commissioning activities - The programming of commissioning requires an understanding of overall project commissioning scope and logic, the detailed sequence of specific commissioning works, and the time required to execute commissioning activities to the required standard.
3.9	Create more detailed commissioning logic diagrams and programmes for specific elements and systems, for procedures such as integrated systems tests (ISTs), system continuous operational performance (SCOP) tests and seasonal tests. (CM2&3 Only) CM1 to assist senior commissioning managers
3.10	Undertake a commissionability review of HVAC Systems
3.11	Undertake a commissionability review of Electrical Systems (CM2/CM3, CM1 assist)
3.12	Undertake a commissionability review of specialist Systems i.e. Life Safety Systems (CM2/CM3, CM1 assist)
3.13	Define commissioning requirements in contract documentation
3.14	Review / Appoint commissioning-competent contractors (CM3 Only) CM1/2 to assist senior commissioning managers.
4.0	Pre-construction
4.1	Close out design commissioning reviews
4.2	Hold commissioning workshops
4.3	Attend, Report and Witness Factory acceptance testing (CM2/CM3, CM1 assist)
4.4	Create project commissioning tracking schedules
4.5	Update the commissioning plan
5.0	On Site Stages
5.1	Produce the construction-stage Commissioning Plan
5.2	Chair commissioning meetings
5.3	Finalise detailed commissioning programme
5.4	Assist in any commissioning Mock-up Tests, including producing Mock-up test plans (CM2/CM3, CM1 assist)
5.5	Produce Commissioning Methodologies for specialist integrated testing i.e. IST, SCOP. (CM2/CM3, CM1 assist)



5.6.1	Review and approve Commissioning Methodologies for HVAC Systems
5.6.2	Review and approve Commissioning Methodologies for Electrical Systems (CM2/CM3, CM1 assist)
5.6.3	Review and approve Commissioning Methodologies for Specialist Systems (CM2/CM3, CM1 assist)
5.7	Review commissioning checklists and proforma commissioning documentation
5.8	Hold commissioning workshops for all systems
5.9	Arrange Factory acceptance testing including travel arrangements, scope, methodology, acceptance criteria (CM2/CM3, CM1 assist)
5.10	Sample MEP installation inspections
5.11	Manage MEP Pre-functional tests including Static testing, pressure testing, dead testing
5.12	Witness MEP Pre-functional tests including Static testing, pressure testing, dead testing
5.13	Manage MEP Functional performance tests of individual building services systems in their own right
5.14	Witness MEP Functional performance tests
5.15	Manage / Witness water treatment as per BSRIA BG29/2020
5.16	Manage / Witness electrical testing
5.17	Manage / Witness plant start up
5.18	Manage / Witness commissioning and balancing of HVAC systems
5.19	Manage / Witness commissioning of BMS systems (CM2/3, CM1 Assist/Train as required)
5.20	Manage / Witness Life Safety system testing (CM2/3, CM1 Assist/Train as required)
5.21	Manage / Witness Integrated Systems Testing (IST) (CM2/3, CM1 Assist/Train as required)
5.22	Undertake detailed Progress and Issue Reporting of all commissioning activities and present to the clients' teams.
5.23	Manage / Witness System continuous operational performance (SCOP) tests. (CM2/3, CM1 Assist/Train as required)
5.24	Train users and operators. (CM2/3, CM1 Assist/Train as required)
5.25	Hand over commissioning-related documentation
5.26	Produce Practical and Sectional Handover letters (CM2/3, CM1 Assist/Train as required)
6.0	In-use Stage
6.1	Review commissioning of the project (CM3 Only, Train CM2/1)
6.2	Fine tuning and seasonal testing (CM2/3, CM1 Assist/Train as required)
6.3	Post-project review (CM3 Only, Train CM2/1)
6.4	Produce detailed commissioning close out reports (CM2/3, CM1 Assist/Train as required)
6.5	Spotting, responding, and helping to deal with issues that emerge during initial occupation
6.6	Introducing users to how their new building operates
6.7	Introducing users to local controls
6.8	Helping the facilities management team with initial operation of the building, including the use of energy meters and monitoring systems
6.9	Using initial feedback to undertake any fine-tuning and debugging that may be required (CM2/3, CM1 Assist/Train as required)
6.10	Producing a lessons-learned report on the commissioning process. (CM2/3, CM1 Assist/Train as required)
7.0	Post-occupancy aftercare
7.1	Resolution of commissioning defects during the 12-month defects liability period and closure of this element of the contract with the client. (CM2/3, CM1 Assist/Train as required)
7.2	Assessment of the new facility to establish its fitness for purpose and whether the client's commissioning requirements have been satisfied (CM2/3, CM1 Assist/Train as required)



7.3	Seasonal Commissioning – Undertake systematic and structured monitoring and measurement of building performance.
8.0	Misc
8.1	Must be able to take full responsibility of one or more commissioning management projects and be responsible to your employer (CM2/CM3)
8.2	Must be responsible on behalf of your employer to their client for all site activities and events within the Commissioning Management scope of the contract
8.3	Must be able to agree documentation requirements and standards for each activity within the Commissioning Management scope
8.4	Must be able to review upcoming and ongoing commissioning programme in terms of labour requirements
8.5	Must have good verbal skills - client discussions and site meetings
8.6	Must have good day-to-day management skills
8.7	Must have good report writing skills (technical)
8.8	Must have good planning skills
8.9	To actively encourage, motivate and assist with the development and training of all personnel under your supervision
8.10	To liaise directly with the client and or client's representative
8.11	Liaise with Head Office daily on-site progress
8.12	To be competent to work on site without supervision and take charge of other site personnel in relation to commissioning systems
8.13	Must be fully aware of latest electrical regulations (CM3 Only)
8.14	To know your own limitations. Recognize when to call for assistance when dealing with items or specialist systems beyond your own experience

Development Aim:

Aim	To be aware of and research changes within the industry. To undertake continual professional development and be capable of satisfying the Committee of the CSA as to your suitability as a CM1 commissioning manager.
CSA Training Route	Via our Specific 2-day Introduction to Commissioning Management Training Course (ITCM) completed within 1 year of applying to be a CSA CM1 Commissioning Manager
End Point Assessment	Each candidate must attend and pass the 2-day Introduction to Commissioning Management Training Course (ITCM)
EPA Award	1 to 3 years Commissioning Management experience with a recognised company/organisation. Must have completed a minimum of 1 commissioning management project and provide CV and references from 2 clients. Submit a (2000-2005) word commissioning management dissertation report, sit an online interview, and attend 2-day Introduction to Commissioning management Course within 1 year of applying to be a CM1 commissioning manager.



2.3.2 CM2 – Senior Commissioning Manager

Overview of the role:

Commissioning management (CxM) of MEP Systems on construction sites or other client buildings.

Typical job titles include:

Senior Commissioning Manager, CSA CM2 Senior Commissioning Manager

Job Grade:

CM2

**Black
SKILLcard**

Experience:

4 to 10 years Commissioning Management experience with a recognised company/organisation.

Must have worked on a minimum of 4 medium or 2 large commissioning management projects and provide CV and references from 3 clients. Submit 2500–3000-word commissioning management dissertation report, sit an online interview with the CSA CxM accreditation panel and attended the 2-day Introduction to Commissioning Management Course

- Bachelor's degree in mechanical, electrical, or building services engineering or a related field. (Optional)
- A minimum of 1-3 years of experience in the building services industry, with a focus on M&E commissioning.
- Strong technical knowledge of building services systems, including HVAC, plumbing, fire protection, and electrical systems.
- Basic understanding of project management principles and the commissioning process.
- Strong communication and interpersonal skills, with the ability to work effectively as part of a team.
- A commitment to health and safety, with a thorough understanding of relevant regulations and best practices.
- Ability to work independently and in a team-oriented, collaborative environment.
- Strong analytical and problem-solving skills, with the ability to learn quickly and take initiative.

Occupation summary:

The CM2 Senior Commissioning Manager is responsible for overseeing the commissioning process of a building, which involves ensuring that the systems and equipment are installed, tested, and operated correctly. Their duties may include:

Developing commissioning plans and schedules: The CM2 Senior Commissioning Manager is responsible for creating a comprehensive commissioning plan that outlines the activities and responsibilities of all parties involved in the commissioning process.

Coordinating commissioning activities: The CM2 Senior Commissioning Manager coordinates the commissioning activities, including functional testing and system start-up, to ensure that the systems and equipment are installed, tested, and operated correctly.

Reviewing design documents: The CM2 Senior Commissioning Manager reviews design documents, such as drawings, specifications, and test procedures, to ensure that they meet the requirements for commissioning and that the commissioning plan is being followed.



Monitoring construction activities: The CM2 Senior Commissioning Manager monitors the construction activities to ensure that the systems and equipment are being installed correctly and in accordance with the design documents and commissioning plan.

Conducting functional testing: The CM2 Senior Commissioning Manager is responsible for conducting functional testing of the systems and equipment to ensure that they are functioning as intended.

Documenting commissioning activities: The CM2 Senior Commissioning Manager documents all commissioning activities, including test results, and maintains records of all commissioning-related activities.

Assisting with training and handover: The CM2 Senior Commissioning Manager assists with training the facility's operations and maintenance personnel on the systems and equipment and provides support during the handover of the facility to the owner or operator.

Overall, the CM2 Senior Commissioning Manager plays a crucial role in ensuring that a building's systems and equipment are installed, tested, and operated correctly, and that the building meets the design and performance requirements of the owner or operator.

Duties:

1.0	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Managers and Professionals or CITB Supervisory HSE test
1.2	Complete internal H&S induction (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep company informed of any damaged PPE
1.5	Review RAMS for Each Project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.6	Carry out site walkdown of new projects and carry out risk assessment for all systems under the company's scope of work. Distribute this to form the latest RA part of the RAMS.
1.7	Working at Heights training completed by candidates' company
1.8	Asbestos Awareness training completed by candidates' company
1.9	Follow-up with RAMS submission and obtain all necessary approvals using the projects document management system
1.10	Perform toolbox talks relating to the commissioning that is being undertaken on the project, delivering to project team members and commissioning staff under their control (CM2 & 3 Only)
2.0	Preparation and Briefing Stage
2.1	Review and understand the Project brief / specifications concerning commissioning
2.2	Identify the performance outcomes required by the client and ultimate end- users.
2.3	Produce a client brief document that clearly describes the performance outcomes expected for the project
2.4	Determine the commissioning scope and budget
2.5	Review commissioning related tenders and provide feedback on the included scope/budget
2.6	Have a full understanding of CIBSE Code M 2021
3.0	Design Stage
3.1	Led by a CM2 or CM3 commissioning manager, form a commissioning team appropriate to the size and complexity of the project being undertaken. CM1 to assist senior commissioning managers



3.2	Produce a Roles and Responsibilities matrix for the commissioning team and systems to be commissioned
3.3	Review commissioning lessons learned from past similar projects / clients' lessons learned
3.4	Produce the design-stage Commissioning Plan
3.5	In accordance with the Building Regulations 2010, ensure the Commissioning Plan is issued to the Project Manager/Main Contractor and the Building Control Body (BCB)
3.6	Create the Commissioning Specification
3.7	Produce a Commissioning Cost Plan (CM3 Only) CM1/2 to assist senior commissioning managers.
3.8	Programme commissioning activities - The programming of commissioning requires an understanding of overall project commissioning scope and logic, the detailed sequence of specific commissioning works, and the time required to execute commissioning activities to the required standard.
3.9	Create more detailed commissioning logic diagrams and programmes for specific elements and systems, for procedures such as integrated systems tests (ISTs), system continuous operational performance (SCOP) tests and seasonal tests. (CM2&3 Only) CM1 to assist senior commissioning managers
3.10	Undertake a commissionability review of HVAC Systems
3.11	Undertake a commissionability review of Electrical Systems (CM2/CM3, CM1 assist)
3.12	Undertake a commissionability review of specialist Systems i.e. Life Safety Systems (CM2/CM3, CM1 assist)
3.13	Define commissioning requirements in contract documentation
3.14	Review / Appoint commissioning-competent contractors (CM3 Only) CM1/2 to assist senior commissioning managers.
4.0	Pre-construction
4.1	Close out design commissioning reviews
4.2	Hold commissioning workshops
4.3	Attend, Report and Witness Factory acceptance testing (CM2/CM3, CM1 assist)
4.4	Create project commissioning tracking schedules
4.5	Update the commissioning plan
5.0	On Site Stages
5.1	Produce the construction-stage Commissioning Plan
5.2	Chair commissioning meetings
5.3	Finalise detailed commissioning programme
5.4	Assist in any commissioning Mock-up Tests, including producing Mock-up test plans (CM2/CM3, CM1 assist)
5.5	Produce Commissioning Methodologies for specialist integrated testing i.e. IST, SCOP. (CM2/CM3, CM1 assist)
5.6.1	Review and approve Commissioning Methodologies for HVAC Systems
5.6.2	Review and approve Commissioning Methodologies for Electrical Systems (CM2/CM3, CM1 assist)
5.6.3	Review and approve Commissioning Methodologies for Specialist Systems (CM2/CM3, CM1 assist)
5.7	Review commissioning checklists and proforma commissioning documentation
5.8	Hold commissioning workshops for all systems
5.9	Arrange Factory acceptance testing including travel arrangements, scope, methodology, acceptance criteria (CM2/CM3, CM1 assist)
5.10	Sample MEP installation inspections
5.11	Manage MEP Pre-functional tests including Static testing, pressure testing, dead testing
5.12	Witness MEP Pre-functional tests including Static testing, pressure testing, dead testing
5.13	Manage MEP Functional performance tests of individual building services systems in their own right
5.14	Witness MEP Functional performance tests



5.15	Manage / Witness water treatment as per BSRIA BG29/2020
5.16	Manage / Witness electrical testing
5.17	Manage / Witness plant start up
5.18	Manage / Witness commissioning and balancing of HVAC systems
5.19	Manage / Witness commissioning of BMS systems (CM2/3, CM1 Assist/Train as required)
5.20	Manage / Witness Life Safety system testing (CM2/3, CM1 Assist/Train as required)
5.21	Manage / Witness Integrated Systems Testing (IST) (CM2/3, CM1 Assist/Train as required)
5.22	Undertake detailed Progress and Issue Reporting of all commissioning activities and present to the clients' teams.
5.23	Manage / Witness System continuous operational performance (SCOP) tests. (CM2/3, CM1 Assist/Train as required)
5.24	Train users and operators. (CM2/3, CM1 Assist/Train as required)
5.25	Hand over commissioning-related documentation
5.26	Produce Practical and Sectional Handover letters (CM2/3, CM1 Assist/Train as required)
6.0	In-use Stage
6.1	Review commissioning of the project (CM3 Only, Train CM2/1)
6.2	Fine tuning and seasonal testing (CM2/3, CM1 Assist/Train as required)
6.3	Post-project review (CM3 Only, Train CM2/1)
6.4	Produce detailed commissioning close out reports (CM2/3, CM1 Assist/Train as required)
6.5	Spotting, responding, and helping to deal with issues that emerge during initial occupation
6.6	Introducing users to how their new building operates
6.7	Introducing users to local controls
6.8	Helping the facilities management team with initial operation of the building, including the use of energy meters and monitoring systems
6.9	Using initial feedback to undertake any fine-tuning and debugging that may be required (CM2/3, CM1 Assist/Train as required)
6.10	Producing a lessons-learned report on the commissioning process. (CM2/3, CM1 Assist/Train as required)
7.0	Post-occupancy aftercare
7.1	Resolution of commissioning defects during the 12-month defects liability period and closure of this element of the contract with the client. (CM2/3, CM1 Assist/Train as required)
7.2	Assessment of the new facility to establish its fitness for purpose and whether the client's commissioning requirements have been satisfied (CM2/3, CM1 Assist/Train as required)
7.3	Seasonal Commissioning – Undertake systematic and structured monitoring and measurement of building performance.
8.0	Misc
8.1	Must be able to take full responsibility of one or more commissioning management projects and be responsible to your employer (CM2/CM3)
8.2	Must be responsible on behalf of your employer to their client for all site activities and events within the Commissioning Management scope of the contract
8.3	Must be able to agree documentation requirements and standards for each activity within the Commissioning Management scope
8.4	Must be able to review upcoming and ongoing commissioning programme in terms of labour requirements
8.5	Must have good verbal skills - client discussions and site meetings
8.6	Must have good day-to-day management skills
8.7	Must have good report writing skills (technical)
8.8	Must have good planning skills



8.9	To actively encourage, motivate and assist with the development and training of all personnel under your supervision
8.10	To liaise directly with the client and or client's representative
8.11	Liaise with Head Office daily on-site progress
8.12	To be competent to work on site without supervision and take charge of other site personnel in relation to commissioning systems
8.13	Must be fully aware of latest electrical regulations (CM3 Only)
8.14	To know your own limitations. Recognize when to call for assistance when dealing with items or specialist systems beyond your own experience

Development Aim:

Aim	To be aware of and research changes within the industry. To undertake continual professional development and be capable of satisfying the Committee of the CSA as to your suitability as a CM2 Senior commissioning manager.
CSA Training Route	Via our Specific 2-day Introduction to Commissioning Management Training Course (ITCM)
End Point Assessment	Each candidate must attend and pass the 2-day Introduction to Commissioning Management Training Course (ITCM)
EPA Award	By Submitting a (2500-3000) word commissioning management dissertation report, sit an online interview with the CSA CxM accreditation panel and attended the 2-day Introduction to Commissioning Management Course.



2.3.3 CM3 – Project Commissioning Manager

Overview of the role:

Commissioning management (CxM) of MEP Systems on construction sites or other client buildings.

Typical job titles include:

Project Commissioning Manager, CSA CM3 Project Commissioning Manager

Job Grade:

CM3

**Black
SKILLcard**

Experience:

10 years + Commissioning Management experience with a recognised company/organisation.

Must have worked on a minimum of 5 large commissioning management projects and provide CV and references from 4 clients. Submit 3000–3500-word commissioning management dissertation report, sit an online interview with the CSA CxM accreditation panel, attended the 2-day Introduction to Commissioning Management Course and the 2-day Advanced Commissioning Management course.

Occupation summary:

A CM3 project commissioning manager is a highly experienced professional in the field of project commissioning, with a deep understanding of complex building services and processes. They lead and manage a team of commissioning managers and engineers, overseeing the planning, execution, and delivery of large-scale projects.

They have extensive knowledge of relevant regulations and standards and ensure that all commissioning activities are carried out safely and efficiently. In addition, CM3 project commissioning managers provide strategic guidance and advice to clients and stakeholders and play a key role in business development and client relationship management. They may also participate in research and development of new technologies and methods to improve commissioning practices. Strong leadership, project management, and technical skills are essential for success in this role.

Key Duties include:

- To manage the commissioning process ensuring all parties are working together to achieve the commissioning requirements.
- Overseeing the complete building commissioning process from start to finish.
- Developing commissioning plans, schedules, reports, checklists and test scripts
- Documenting commissioning and installation progress
- Understanding the specific details and demands of our project briefs.
- Conducting and documenting the results of inspections and tests
- Managing and arranging testing requirements
- Financial control including working within our resource allowance.
- Working to project timescales and deadlines
- Collaborating closely with the general contractor's team to devise commissioning strategies and processes that align with project timelines and objectives.
- Participating in project meetings as necessary
- Providing technical support during client discussions
- Working collaboratively with both internal and external team members



- Reporting delays and obtaining site instructions with signed work record sheets
- Supplying ongoing progress reports and producing final project report
- Conducting technical evaluations of project schedules, drawings, and technical submissions
- Managing and documenting results from offsite factory tests
- Facilitating third party approval and relevant sign off

Experience required in.

- Reviewing the Mechanical, Electrical and Public health design and producing an associated Commissionability report
- Production of commissioning plans and strategies
- Production of commissioning specifications
- Chairing of commissioning meetings with associated minutes
- Factory acceptance testing
- Production and management of commissioning programmes
- Reviewing and commenting on M&E commissioning method statements
- Production and management of progress of tracking schedules
- Management of Mechanical and Electrical off-site testing
- Production and issuing of progress reports.
- Management and witnessing of Mechanical and Electrical static testing.
- Management and witnessing of Mechanical and Electrical functional testing.
- Management and coordination of cause and effect and integrated system testing
- Management of project handover
- Post-handover requirements such as seasonal testing and soft landings
- Being responsible for all aspects of site safety for yourself and others including risk assessments and toolbox talks
- Evaluating labour requirements against the programme and tender submissions
- Producing commissioning completion reports
- Knowledge of BREEAM and LEED

Duties:

1.0	Health & Safety
1.1	Candidate must pass the CITB Health, safety and environment (HS&E) test – Managers and Professionals or CITB Supervisory HSE test
1.2	Complete internal H&S induction (HS&E Policy, Employees Handbook)
1.3	Must review PPE and keep company informed of any damaged PPE
1.5	Review RAMS for Each Project and only sign once the methodology procedures and associated safeguards and Specialist Protections or working conditions are fully understood
1.6	Carry out site walkdown of new projects and carry out risk assessment for all systems under the company's scope of work. Distribute this to form the latest RA part of the RAMS.
1.7	Working at Heights training completed by candidates' company
1.8	Asbestos Awareness training completed by candidates' company
1.9	Follow-up with RAMS submission and obtain all necessary approvals using the projects document management system
1.10	Perform toolbox talks relating to the commissioning that is being undertaken on the project, delivering to project team members and commissioning staff under their control (CM2 & 3 Only)
2.0	Preparation and Briefing Stage
2.1	Review and understand the Project brief / specifications concerning commissioning
2.2	Identify the performance outcomes required by the client and ultimate end- users.
2.3	Produce a client brief document that clearly describes the performance outcomes expected for the project



2.4	Determine the commissioning scope and budget
2.5	Review commissioning related tenders and provide feedback on the included scope/budget
2.6	Have a full understanding of CIBSE Code M 2021
3.0	Design Stage
3.1	Led by a CM2 or CM3 commissioning manager, form a commissioning team appropriate to the size and complexity of the project being undertaken. CM1 to assist senior commissioning managers
3.2	Produce a Roles and Responsibilities matrix for the commissioning team and systems to be commissioned
3.3	Review commissioning lessons learned from past similar projects / clients' lessons learned
3.4	Produce the design-stage Commissioning Plan
3.5	In accordance with the Building Regulations 2010, ensure the Commissioning Plan is issued to the Project Manager/Main Contractor and the Building Control Body (BCB)
3.6	Create the Commissioning Specification
3.7	Produce a Commissioning Cost Plan (CM3 Only) CM1/2 to assist senior commissioning managers.
3.8	Programme commissioning activities - The programming of commissioning requires an understanding of overall project commissioning scope and logic, the detailed sequence of specific commissioning works, and the time required to execute commissioning activities to the required standard.
3.9	Create more detailed commissioning logic diagrams and programmes for specific elements and systems, for procedures such as integrated systems tests (ISTs), system continuous operational performance (SCOP) tests and seasonal tests. (CM2&3 Only) CM1 to assist senior commissioning managers
3.10	Undertake a commissionability review of HVAC Systems
3.11	Undertake a commissionability review of Electrical Systems (CM2/CM3, CM1 assist)
3.12	Undertake a commissionability review of specialist Systems i.e. Life Safety Systems (CM2/CM3, CM1 assist)
3.13	Define commissioning requirements in contract documentation
3.14	Review / Appoint commissioning-competent contractors (CM3 Only) CM1/2 to assist senior commissioning managers.
4.0	Pre-construction
4.1	Close out design commissioning reviews
4.2	Hold commissioning workshops
4.3	Attend, Report and Witness Factory acceptance testing (CM2/CM3, CM1 assist)
4.4	Create project commissioning tracking schedules
4.5	Update the commissioning plan
5.0	On Site Stages
5.1	Produce the construction-stage Commissioning Plan
5.2	Chair commissioning meetings
5.3	Finalise detailed commissioning programme
5.4	Assist in any commissioning Mock-up Tests, including producing Mock-up test plans (CM2/CM3, CM1 assist)
5.5	Produce Commissioning Methodologies for specialist integrated testing i.e. IST, SCOP. (CM2/CM3, CM1 assist)
5.6.1	Review and approve Commissioning Methodologies for HVAC Systems
5.6.2	Review and approve Commissioning Methodologies for Electrical Systems (CM2/CM3, CM1 assist)
5.6.3	Review and approve Commissioning Methodologies for Specialist Systems (CM2/CM3, CM1 assist)
5.7	Review commissioning checklists and proforma commissioning documentation
5.8	Hold commissioning workshops for all systems
5.9	Arrange Factory acceptance testing including travel arrangements, scope, methodology, acceptance criteria (CM2/CM3, CM1 assist)



5.10	Sample MEP installation inspections
5.11	Manage MEP Pre-functional tests including Static testing, pressure testing, dead testing
5.12	Witness MEP Pre-functional tests including Static testing, pressure testing, dead testing
5.13	Manage MEP Functional performance tests of individual building services systems in their own right
5.14	Witness MEP Functional performance tests
5.15	Manage / Witness water treatment as per BSRIA BG29/2020
5.16	Manage / Witness electrical testing
5.17	Manage / Witness plant start up
5.18	Manage / Witness commissioning and balancing of HVAC systems
5.19	Manage / Witness commissioning of BMS systems (CM2/3, CM1 Assist/Train as required)
5.20	Manage / Witness Life Safety system testing (CM2/3, CM1 Assist/Train as required)
5.21	Manage / Witness Integrated Systems Testing (IST) (CM2/3, CM1 Assist/Train as required)
5.22	Undertake detailed Progress and Issue Reporting of all commissioning activities and present to the clients' teams.
5.23	Manage / Witness System continuous operational performance (SCOP) tests. (CM2/3, CM1 Assist/Train as required)
5.24	Train users and operators. (CM2/3, CM1 Assist/Train as required)
5.25	Hand over commissioning-related documentation
5.26	Produce Practical and Sectional Handover letters (CM2/3, CM1 Assist/Train as required)
6.0	In-use Stage
6.1	Review commissioning of the project (CM3 Only, Train CM2/1)
6.2	Fine tuning and seasonal testing (CM2/3, CM1 Assist/Train as required)
6.3	Post-project review (CM3 Only, Train CM2/1)
6.4	Produce detailed commissioning close out reports (CM2/3, CM1 Assist/Train as required)
6.5	Spotting, responding, and helping to deal with issues that emerge during initial occupation
6.6	Introducing users to how their new building operates
6.7	Introducing users to local controls
6.8	Helping the facilities management team with initial operation of the building, including the use of energy meters and monitoring systems
6.9	Using initial feedback to undertake any fine-tuning and debugging that may be required (CM2/3, CM1 Assist/Train as required)
6.10	Producing a lessons-learned report on the commissioning process. (CM2/3, CM1 Assist/Train as required)
7.0	Post-occupancy aftercare
7.1	Resolution of commissioning defects during the 12-month defects liability period and closure of this element of the contract with the client. (CM2/3, CM1 Assist/Train as required)
7.2	Assessment of the new facility to establish its fitness for purpose and whether the client's commissioning requirements have been satisfied (CM2/3, CM1 Assist/Train as required)
7.3	Seasonal Commissioning – Undertake systematic and structured monitoring and measurement of building performance.
8.0	Misc
8.1	Must be able to take full responsibility of one or more commissioning management projects and be responsible to your employer (CM2/CM3)
8.2	Must be responsible on behalf of your employer to their client for all site activities and events within the Commissioning Management scope of the contract



8.3	Must be able to agree documentation requirements and standards for each activity within the Commissioning Management scope
8.4	Must be able to review upcoming and ongoing commissioning programme in terms of labour requirements
8.5	Must have good verbal skills - client discussions and site meetings
8.6	Must have good day-to-day management skills
8.7	Must have good report writing skills (technical)
8.8	Must have good planning skills
8.9	To actively encourage, motivate and assist with the development and training of all personnel under your supervision
8.10	To liaise directly with the client and or client's representative
8.11	Liaise with Head Office daily on-site progress
8.12	To be competent to work on site without supervision and take charge of other site personnel in relation to commissioning systems
8.13	Must be fully aware of latest electrical regulations (CM3 Only)
8.14	To know your own limitations. Recognize when to call for assistance when dealing with items or specialist systems beyond your own experience

Development Aim:

Aim	To be aware of and research changes within the industry. To undertake continual professional development and be capable of satisfying the Committee of the CSA as to your suitability as a CM3 project commissioning manager.
CSA Training Route	Via our Specific 2-day Introduction to Commissioning Management Training Course (ITCM) and 2-Day Advance Commissioning Management Training Course (ACM)
End Point Assessment	Each candidate must attend and pass the 2-Day Advance Commissioning Management Training Course (ACM)
EPA Award	By Submitting (3000-3500) word commissioning management dissertation report, sit an online interview with the CSA CxM accreditation panel, attended the 2-day Advanced Commissioning Management course.



3 CSA's Distance Learning Courses - (DLC's) in Detail

The COMMISSIONING SPECIALISTS' ASSOCIATION is committed to the concept of training of commissioning technicians and engineers and to overseeing and arranging learning courses uniquely designed to meet their needs.

Within the overall framework of Grades 1 to 6, training courses covering the technical theory and knowledge required for Grades 1 to 3 have been developed over the course of the last 23 years. They are available to students as a DISTANCE LEARNING COURSE. There are three self-contained Parts, each incorporating a number of Modules.

The following format has been developed for the DLC's:

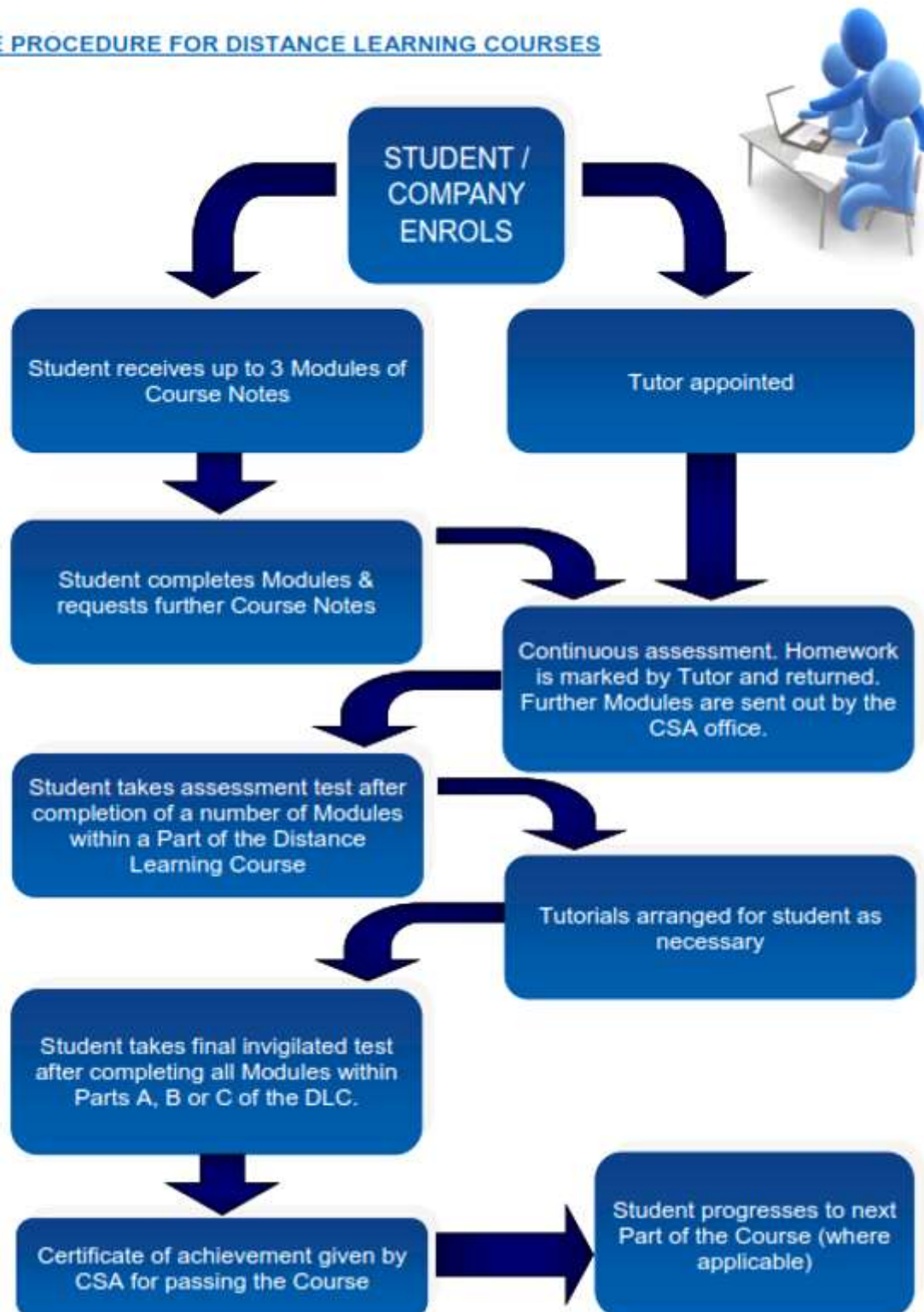
- The student, or the company employing that student, enrolls and pays a fee to the CSA for the relevant part of the course to be taken. Application forms and further instructions are available for download from www.csa.org.uk
- Once the student has enrolled, they will be supplied with a Starter Pack via email. This consists of a welcome letter with their allocated tutors' details, a header sheet in case they want to print it off and put in a folder, full course instructions and the module list of the relevant course. They are also sent the first 3 modules of the course and the homework sheets for those modules. The homework sheets are separate from the modules and left as word docs so that the student can either write or type their answers on them and email them back to the CSA for marking. Some modules will require drawings or additional reports or paperwork to be sent in and these can be emailed also.
- Homework is emailed where possible into the CSA office and sent to the relevant tutor for marking and comment. On receipt of a student's homework, the next set of modules and homework are emailed back out to them. Each module will give much of the information needed for the work, but the student will need to refer to standard reference books (e.g. BSRIA Guides and CIBSE Codes) during the course.
- Each student is assigned a tutor, who will monitor their progress and be available to give assistance and guidance where needed. A tutor will be appointed from the CSA Training sub-committee or other suitable person.
- Each module contains "homework" to be assessed, marked and commented on by the tutor. Communication between student and tutor may be direct or may be via the CSA office.
- When the student has completed a course of modules, i.e. one Part (DLC A, B or C), they will be expected to take a completion test in a controlled environment, i.e. in an office with an invigilator appointed by the via an online portal that has its own proctoring invigilation. Upon passing the DLC examination a certificate is then issued for the part of the course completed.

Progression is intended to be from Part A upwards. Each Part must be completed successfully before a student starts the next stage.

This DLC exam pass certificate can be combined with an updated CV to request an upgrade to current CSA commissioning Grade.

3.1 Outline Procedure for Distance Learning Courses

OUTLINE PROCEDURE FOR DISTANCE LEARNING COURSES



Note “invigilated test” also includes remote hosted DLC A, B & C examination performed via online proctored exam host.



3.2 Commissioning - CSA Distance Learning Course Module Overview

PART A:

- A/1 Health & Safety
- A/2 S.I. Units
- A/3 Drawing & Notation
- A/4 Basic Water Systems
- A/5 Basic Air Systems
- A/6 Types of Pumps & Fans
- A/7 Basic Flow Measurements & Types of Instruments
- A/8 Codes of Practice
- A/9 Basic Flow Regulation
- A/10 Documentation & Reports
- A/11 Quality Assurance Outlines

PART B:

- B/1 Reporting & Contractual Awareness
- B/2 Heat
- B/3 Heat Transmission
- B/4 Flowrate & Circulation
- B/5 Air & Water Design Concepts
- B/6 Electrical Theory
- B/7 Airflow Regulation
- B/8 Water Flow Regulation
- B/9 Advanced Air Systems
- B/10 Advanced Water Systems
- B/11 Filtration
- B/12 Variable Volume Water Systems

PART C:

- C/1 Instrument Calibration
- C/2 Duct Sizing
- C/3 Pipe Sizing
- C/4 Heat Exchangers
- C/5 Fans & Pumps
- C/6 Duty Calculations
- C/7 Water Treatment, Flushing & Venting
- C/8 Advanced Water Flow Regulation
- C/9 Advanced Air Commissioning



3.3 Water Treatment - CSA Distance Learning Course Module Overview

PART A:

- A/1 Health & Safety
- A/2 Basic Water Systems
- A/3 Drawing & Notation
- A/4 Types of Pumps & Pump Curves
- A/5 SI Units, Basic Water & Flow Measurements
- A/6 Chemicals & Test Instruments Used in Water Treatment
- A/7 Basic Microbiology
- A/8 Sampling
- A/9 Guidance & Codes of Practise
- A/10 Documentation
- A/11 Quality Assurance

PART B:

- B/1 Reporting & Contractual Awareness
- B/2 Advanced Water Systems & Design / WT Regulations
- B/3 Heat Transmission
- B/4 Traditional Water Treatment Process
- B/5 Filtration Water Treatment Process (CPC) & Importance of Filling
- B/6 Water Flow Regulations & Dynamic Flushing
- B/7 Chemistry
- B/8 Disinfection & Water Treatment
- B/9 Types of Pumps – Pump Laws
- B/10 Electrical Theory

PART C:

- C/1 Corrosion & Corrosion Monitoring
- C/2 Advanced Chemistry
- C/3 Advanced Microbiology
- C/4 Chemical & Microbiological Sample Results
- C/5 Laboratory Testing vs Onsite Testing
- C/6 VDI 2035
- C/7 Pipe Sizing
- C/8 Heat Exchangers
- C/9 Duty Calculations
- C/10 Impaction of Water Treatment on Commissioning



4 Grade 4 – Online Examination

The CSA Grade 4 consists of 2 different examinations.

1. Grade 4 Examination – Technical
2. Grade 4 Examination – Theoretical

Important note: Both examinations require to be passed before a Grade 4 can be awarded.

Pre-requisites to sit Grade 4:

- A. You must comply with the CSA grade 4 entrance criteria.
- B. You must currently be a CSA member at CSA grade 3 before you can sit the Grade 4 examination.

How to place your interest in sitting Grade 4 exam

If you comply items A & B above, please register your interest in sitting the Grade 4 examination by emailing office@csa.org.uk.

4.1 Grade 4 Exam – New Format

The Grade 4 exam now takes place online via an independently hosted examination platform.

This platform has an integrated proctoring AI that will invigilate the exam.

1. Grade 4 Examination – Technical
2. Grade 4 Examination – Theoretical

There are 50 multiple choice questions that candidates must score 80% or more to pass the exam (candidates must successfully answer 40 or more questions on each exam)

To obtain a grade 4 candidates must pass both exams. This is available for Commissioning (see 4.2) and Water Treatment (see 4.3) applicants.

4.2 Commissioning G4 - Exam Question Bank

Each exam contains 50 questions. There are 40 core questions on each exam paper plus 10 questions randomized to test the Grade 4 candidates' technical or theoretical knowledge including but not limited to:

- Duct sizing - calculating areas, resistances, • Locating water flow metering stations.
- Fan/Pump laws, static pressure relationships • Coil duties • Mixing airflows, temperature relationships.
- Electric motors, overloads, full load currents • VAV systems - commissioning methods
- Refrigeration - basic system arrangements • S.I. units & derivations • Problem solving - over volume systems, branch/main valve discrepancies, motorised control valves. •Contractual awareness



4.3 Water Treatment G4 - Exam Question Bank

Each exam contains 50 questions. There are 40 core questions on each exam paper plus 10 questions randomized to test the Grade 4 candidates' technical or theoretical knowledge including but not limited to:

- Microbiology • Chemical – identification and usage • Disinfection Process • Water Treatment Procedures
- Pump laws, static pressure relationships • CPC process • Advanced Chemistry • Advanced Microbiology
- VDI 2035 process • Impact of Water treatment on Commissioning • Chemicals – Problem Solving
- Coil duties • Water Treatment requirements for different applications • Electric motors.
- S.I. units & derivations • Impacts of Water Filling • Contractual awareness.

All CSA examinations are closed book exams – no reference guides or external sources are allowed for examinations.



5 Grade 5 – System Performance & New Thesis Format

From July 2024 the new grade 5 system will be split in 3 sections.

Stage 1 – System Performance – Evidence

Stage 2 – New Thesis Format Synopsis & Thesis

Stage 3 – Compliance to JD, Updated CV and Application for Grade 5

5.1 Grade 5 – Stage 1 – System Performance Evidence

Candidates should select 5.1A) or 5.1B) as directed below.

For those following the commissioning pathway select 5.1 A)

5.1A) Submit 4 different systems that you have commissioned in the past year that are within design tolerance that have been witnessed

Test packs - should include:

- Fa/Pump test sheet
- Terminal balancing test sheet
- Schematic
- Traverse sheets (air systems only)
- Section/summary or record of witness

Or

For those following the water treatment pathway select 5.1B)

5.1B) Submit 4 different systems that you have performed water treatment on in the past year that results are within the design parameters that have been witnessed

Pack should include:

- Minimum flushing velocity achieved at Dynamic Flushing Stage in accordance with BG29.
- Table 4 sampling results achieved 7 days after PCC is within guidelines shown in BG29.
- Table 5 sampling results show system is within guidelines shown in BG29.
- Section/summary or record of witness

PCC packs should include complete test packs (including coil back-flush, strainer check, site analysis etc)

5.1C) For each system submitted in part 5.1A) or 5.1B) include Projected related RA/ RAMS for that system

Completed Stage 1 Project Evidence should be emailed to office@csa.org.uk for review by the Assessment Review Panel.

5.2 Grade 5 – Stage 2 – Synopsis & Thesis

Only those candidates who have had Part 1 approved can move onto Part 2.

5.2.1 Closed synopsis.

The Assessment Panel will issue a topic/synopsis to student to produce a thesis on. This will be related to either Commissioning or Water Treatment.

This will include sections and subsections that the thesis should follow.

Student will take this synopsis and complete the thesis. The student should follow the synopsis structure and ensure that they have included:

- Word count: 2500 words (MIN) 3000 words (MAX)
- Personal research
- External sources
- Students own writing style.
- Checks that they have avoided Plagiarism and AI Tools/Programmes/Websites (refer to guidance below)

5.2.2 Key assessment criteria for the thesis

Some of the key assessment criteria for a thesis are shown below:

- Does the thesis show clear evidence of personal research?
- Does the candidate exhibit a detailed knowledge of the chosen subject?
- The thesis must also show that a candidate has the necessary report writing skills.
- The thesis must therefore show personal development/ technical knowledge and the ability to examine a subject objectively and to seek out and present arguments for and against a case.
- Is the thesis well written and presented?
- Is there a definitive conclusion? Is this fully supported by the arguments?

5.2.3 CSA Zero Tolerance Policy

- The CSA Assessment Panel hold a zero-tolerance policy on AI assisted writing Tools/Programmes/Websites
- The CSA Assessment Panel hold a zero-tolerance policy on plagiarism.

5.2.4 Plagiarism – what it is and how to avoid it!

Plagiarism is defined as the presentation of someone else's work or ideas as your own, without proper attribution. This includes copying text, ideas, images, or data from any source, including books, articles, websites, and other students' work.

We can reduce the risk of being flagged for plagiarism by

- minimizing the use of someone else's work
- always providing original authors full citation
- if quoting directly from another publisher place the entire quote into Quotation marks "" and use italicize that text



5.2.5 Citations and references

Students can use any citation or reference style they choose – from Harvard Style to Vancouver Style. One of the simplest to follow is the IEEE Style. How citations/references look within the thesis

If this line is **fully in your words, no changes are needed.**

...by optimising the pump this allows the system to work at its most efficient setpoint.

If there is proof created by **another author** about **the most efficient setpoint this needs a citation mark**

...by optimising the pump this allows the system to work at its most efficient setpoint [1]

If **the entire phrase has been copied from another source**, it needs to be **placed into quotation marks** with **italics** and **reference to the source.**

“...by optimising the pump this allows the system to work at its most efficient setpoint” [1]

Later in the Reference List section item [1] J. Smith, setting pump to work, John Smith Publications, 2055.

This allows the reader to follow the main body of thesis and know what is being cited and what is original work.

5.2.6 AI Writing Tools/Programmes/Websites

The CSA are aware that AI writing tools/programmes/websites are available for the public – including potential Grade 5 Thesis applicants. The CSA Assessment Panel use a number of AI Writing tools to detect the use of these tools, programmes and websites (refer to **CSA Zero Tolerance Policy**)

5.2.7 Why can't I use AI to help write my thesis?

Integrity. Originality. Ownership. These are the 3 main reasons the CSA Assessment Panel offer a zero-tolerance policy on plagiarism and or AI assisted writing tools being used as part of the thesis submission.

Thesis Academic Integrity:

- Using AI to write or partially write or help write a thesis undermines the principles of having academic integrity.
- It also misrepresents the student's abilities and knowledge.

Original Work:

- A thesis generated by AI is not original in the sense that it does not reflect the student's personal understanding, analysis, and synthesis of the topic. This allows student to obtain assessment criteria without showing their own personal understanding of the topic.

Thesis author:

- Being a thesis author typically implies that the author has engaged in the intellectual process of creating the work.
- If a thesis is generated by AI, the student has not engaged in this intellectual wiring or personal research elements of thesis.



5.3 Grade 5 – Stage 3 – Compliance to JD and Application

Candidates that have completed Stage 1 & 2 can proceed and submit.

- Updated CV that shows minimum of 8 years commissioning or water treatment experience
- CV should list out the last 3 years' worth of projects handled since Grade 4 awarded.
- Apply for a Grade 5 upgrade.

All upgrade requests should be emailed to office@csa.org.uk



6 Grade 6 – New Process to become a Commissioning Manager

Pre-requisites before starting Grade 6 process:

- A. You must comply with the CSA grade 6 entrance criteria.
- B. You must currently be a CSA member at CSA grade 5.
- C. You must have at least 1-3 years Commissioning Management Experience

If you comply items A & B above, please register your interest in upgrading to Grade 6 by emailing.
office@csa.org.uk .

CSA Grade 6 – Commissioning Managers will need to follow the Commissioning Management Process for CM1.

6.1 Stage 1 Commissioning Managers CV, CM Supporting Evidence & Client References

- 1) **Submit your most recent Commissioning Management CV**
- 2) **Submit client references.**
- 3) **Submit CM project supporting documents that you have produced or signed-off, from a recent CM project.**
- 4) **Fill in the Application form - for CM grade state as G6 or Grade 6**

Candidates with Stage 1 approved, can proceed to Stage 2.

6.2 Stage 2 Commissioning Management Dissertation

- 5) **Follow the CM process and submit a dissertation commissioning management report.** The structure of the report should follow the detailed guidelines provided under Dissertation Report within the CM Application Process Guide. In addition to this
 - a. This dissertation should cover each stage of the commissioning managers duties and the obstacles faced/overcome. This requires the candidate to give project examples for each project duty shown.
 - b. The candidate is required to demonstrate their knowledge of the process and prove (via evidence) how they use this on at least 1 project for each stage of commissioning.

Dissertations that are approved, can move onto Stage 3

6.3 Stage 3 Commissioning Management Interview

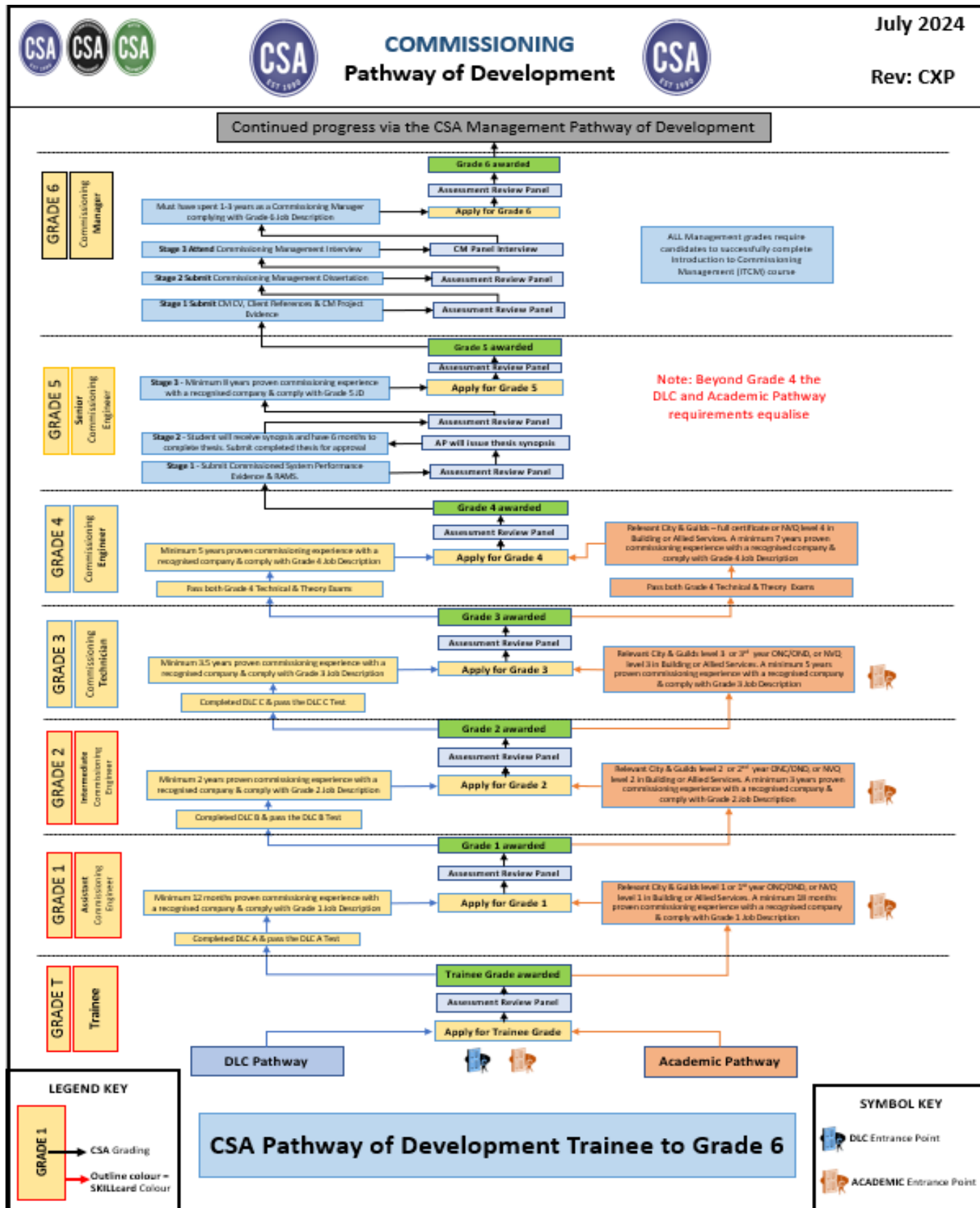
- 6) **Candidates that have successfully completed and been approved for Stages 1 and 2 will enter the final Interview Stage**
 - a. **Candidates will be requested to give dates that are suitable for the interview.**
 - b. **Once a suitable date is chosen, the CSA will issue an interview invite.**
- 7) **Candidates Interview will be based on their CM experience.**

Candidates with successful interviews* will have their full application circulated to the CM panel for final approval of their Grade 6.



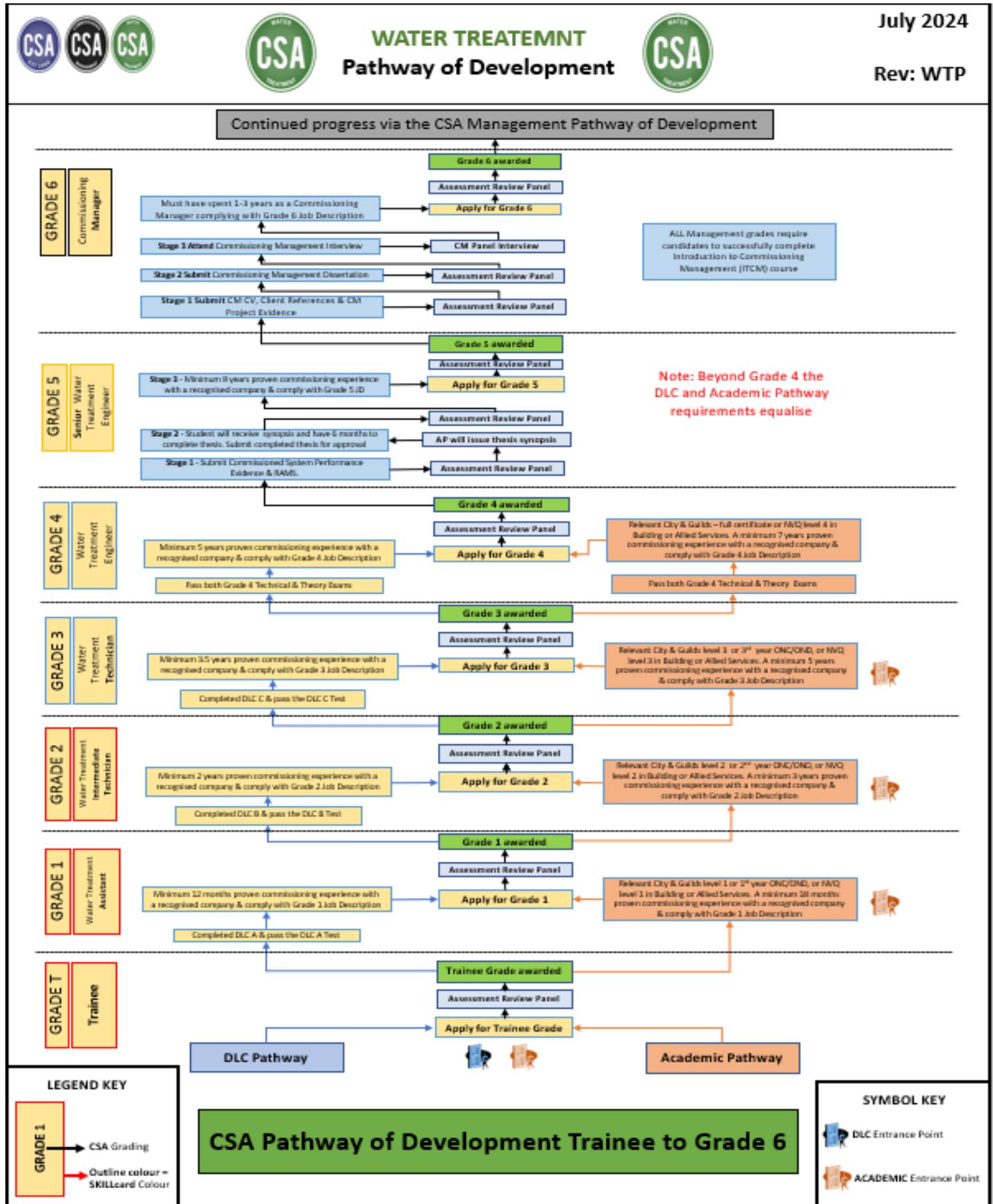
7 CSA's Pathways of Development

7.1 Commissioning PoD





7.2 Water Treatment PoD





7.3 Commissioning Management PoD (fully open to Water Treatment path)

