



Entry Guidance and Preparation

August 2024 - CCL7002 Rev 2

This document provides advice and guidance for anyone undertaking a CompEx qualification.

Disclaimer

- CompEx does not set specific, mandatory entry criteria for its qualifications.
- Any information regarding knowledge and skills is for guidance purposes only.
- In general terms, it is the responsibility of the Approved Training Provider (ATP) to ensure that candidates have the potential to successfully gain the relevant qualification.
- Qualified centre staff should exercise their judgement and industry knowledge when evaluating candidate applications. CompEx qualifications cover a very broad range of job roles, disciplines, knowledge, and experience. They are used to assess the competence of both new entrants and experienced hazardous area practitioners. Therefore, any overly proscriptive entry criteria is likely to be unhelpful in selecting candidates.
- ATPs should look for relevant technical qualifications. For example, electrical, control, instrumentation or mechanical practitioners would possess the equivalent of a UK RQF Level 3, such as a recognised (accredited) Level 3 vocational qualification.
- International ATPs are encouraged to research local market equivalents, as it is impractical for CompEx to maintain a comprehensive list of appropriate qualifications.
- Effective from 12th February 2024 and as part of the introduction of the new Accolade Candidate Management System, CompEx no longer issue Craftsperson Status Not Verified (CSNV) certificates. Existing CSNV certificates remain valid until their normal expiry date.

Useful links

- UK government website: <https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels>
- International comparisons can be referenced <https://europa.eu/europass/en/europass-tools/european-qualifications-framework>
- Specific equivalences between UK and international awards can be found through the UK national agency for international qualifications and skills <https://www.enic.org.uk/>

Foundation (ExF)

Designed to provide an introduction into potentially explosive or flammable environments where gases, vapours and dust can form a hazardous atmosphere. This course is suitable for personnel who require an understanding of basic Ex principles, and trainee, newly qualified and practicing technicians, and non-technical on-site personnel who wish to develop their knowledge before undertaking more technical CompEx qualifications

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COURSE DETAILS](#)

Knowledge

- Understands general safe working practices
- Is aware of general Health & Safety legislation and guidance
- Has a basic understanding of Ex environments
- Understands the necessity for safe working practices in Ex environments

Skills

- No practical skills required
- Candidates will learn:
 - An understanding of the regulations, directives and standards associated with locations containing hazardous atmospheres
 - An overview of hazardous area classification, safe working practices and basic protection concepts used for certifying Ex equipment
- This is a theory-only course

Experience

- No entry qualification requirements
- No prior experience of working in an Ex environment

Preparation

- This is a theory-only course and is suitable for technical and non-technical personnel who require a basic understanding of hazardous work areas, or who wish to develop their knowledge before undertaking more technical CompEx qualifications
- All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Foundation Plus (ExF+)

This course covers the same theory-based learning as the ExF, but also includes practical training that allows candidates to learn the correct techniques for glanding and terminating low voltage cables in hazardous locations. It is suitable for electrical or instrumentation technicians who are new to working in hazardous areas, trainees, and recently qualified technicians who wish to develop their knowledge of working safely in hazardous areas.

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Knowledge

- Understands general safe working practices
- Is aware of general Health & Safety legislation and guidance
- Has a basic understanding of Ex environments
- Understands the necessity for safe working practices in Ex environments

Skills

- Practical skills in engineering assembly of a complexity consistent with a craftsman in the subject areas of electrical, instrumentation or mechanical fitter
- Can identify, select and use appropriate practical skills, methods and procedures when working in Ex environments, as required for:
 - Glanding and terminating industrial low voltage cables
 - Installing and terminating certified Ex cable glands and conductors

Experience

- No prior experience of directly working in Ex environments

Preparation

- Qualifications consistent with a craftsman in the areas of Electrical, Instrumentation or Mechanical disciplines, e.g. Min NVQ Level 2
- All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Functional Safety (FSF)

Principally based on IEC 61511, the CompEx Functional Safety Foundation qualification introduces the concept of Functional Safety (FS) and its relationship to the safe operation of equipment and control systems. This course is ideal for personnel wishing to gain a basic understanding of Functional Safety. Personnel who may benefit from this course include operators, maintenance technicians, supervisors, process engineers, engineering focused asset engineers and plant managers.

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Knowledge

- Know the relevant legislative, regulatory, local requirements and procedures for safe working practice and systems of work in an industrial setting
- Is aware of general Health & Safety legislation and guidance
- Interprets basic manufacturer's instructions and guidance
- Recognises typical Ex environments
- Has factual, procedural and theoretical understanding of Ex environments
- Is aware of the concept of functional safety and safety integrity levels (SIL)
- Understands the necessity for safe working practices in Ex environments and basic protection concepts used for certifying Ex equipment
- Is aware that working in Ex environments is regulated by industry standards and international standards.

Skills

- No practical skills required
- Identify, select and use appropriate skills, methods and procedures when working in Ex environments.
- Address well-defined but potentially complex problems and use appropriate investigation to inform actions

Experience

- No prior experience of working in Ex environments

Preparation

- RQF Level: 3, National Vocational Qual (NVQ), National Diploma (ND) in Electrical / Electronic, Mechanical, Non-Technical
- All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Gas and Vapours (Ex01-04)

Developed for electrical and instrument technicians working in hazardous locations where gases or vapours can form explosive atmospheres. This qualification is suitable for practicing electrical or instrument technicians and engineers who are involved in installing, inspecting and maintaining certified Ex electrical equipment in locations where gases and vapours can potentially create a hazardous area.

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Knowledge	<ul style="list-style-type: none">• Knows the relevant legislative, regulatory, local requirements• Understands procedures for safe working practice and systems of work in an industrial setting• Able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals• Understands the hierarchy of responsibilities in relation to reporting and decision-making• Understands the need for and methods of achieving safe working practice in gas and vapour Ex environments• Has basic practical, theoretical and technological knowledge and understanding of gas and vapour Ex environments• Has a basic understanding of the requirements, materials and equipment considerations, in relation to working in gas and vapour Ex environment
Skills	<ul style="list-style-type: none">• Practical skills in engineering assembly of a complexity consistent with that of a level 3 craftsperson• Apply safe working practices including safe isolation to meet the requirements of statutory and non-statutory regulations• Safely install, inspect, test, commission, diagnose and correct faults in electrical plant, instrumentation, associated cabling, cabling supports and equipment• Select, gland & terminate industrial type cables to a suitable component and associated cable tray in line with details on the appropriate specification• Interpret manufacturers documentation for correct installation, maintenance and inspection• Select and install a variety of Ex certified cables glands and terminate conductors into equipment• Understand the principles of electrical protection concepts including selection, installation and maintenance• Understands intrinsically safe concept of protection and installation including the importance of documentation• Inspect new and existing equipment in accordance with appropriate inspection techniques relevant to the different grades of inspection
Experience	<ul style="list-style-type: none">• 2 + years' experience operating in a site / industrial environment• Installing, inspecting, testing and/or maintaining equipment in an industrial setting
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Level 3, ECS Gold Card, National Diploma or equivalent in Electrotechnical and/or Instrumentation• All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Maritime Fuels (MTEEx01 – MTEEx04)

Developed for technicians and engineers working on vessels that use gas or low flashpoint fuels such as LNG.

This qualification is suitable for engineers and electrical or instrument technicians who are responsible for the installation, maintenance and inspection of electrical systems and instrumentation within hazardous areas onboard vessels using gas or low flashpoint fuels.

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DETAILS](#)

Knowledge	<ul style="list-style-type: none">• Knows the relevant legislative, regulatory, local requirements• Understands procedures for safe working practice and systems of work in a Maritime setting• Able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals• Understands the hierarchy of responsibilities in relation to reporting and decision-making• Understands the need for and methods of achieving safe working practice in Maritime Ex environments.• Has basic practical, theoretical and technological knowledge and understanding of maritime Ex environments• Has a basic understanding of the requirements, materials and equipment considerations, in relation to working in Maritime Ex environments
Skills	<ul style="list-style-type: none">• Practical skills in engineering assembly of a complexity consistent with that of a level 3 craftsperson• Apply safe working practices including safe isolation to meet the requirements of statutory and non-statutory regulations.• Safely install, inspect, test, commission, diagnose and correct faults in electrical plant, instrumentation, associated cabling, cabling supports and equipment.• Select, gland & terminate industrial type cables to a suitable component and associated cable tray in line with details on the appropriate specification.• Interpret manufacturers documentation and certification standards for correct installation, maintenance and inspection.• Select and install a variety of Ex certified cable glands.• Understand the principles of electrical protection concepts including selection, installation and maintenance• Understands intrinsically safe concept of protection and installation including the importance of documentation.• Inspect new and existing equipment in accordance with appropriate inspection techniques relevant to the different grades of inspection
Experience	<ul style="list-style-type: none">• 2 + years' experience operating in a site / industrial environment• Installing, inspecting, testing and/or maintaining equipment in an industrial setting
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Level 3 ECS Gold Card, National Diploma or equivalent in Electrotechnical and/or Instrumentation• All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Dust (Ex05 – Ex06)

This qualification has been designed for practicing electrical or instrumentation technicians who work in hazardous locations where combustible dust, fibres or flyings can form an explosive atmosphere. It is suitable for electrotechnical personnel who work on the physical installation and assembly of new 'Ex' equipment and perform preventive maintenance and inspections on previously installed equipment in hazardous dust atmospheres.

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Knowledge	<ul style="list-style-type: none">• Knows the relevant legislative, regulatory, local requirements• Understands procedures for safe working practice and systems of work in an industrial setting• Able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals• Understands the hierarchy of responsibilities in relation to reporting and decision-making• Understands the need for and methods of achieving safe working practice in dust Ex environments.• Has practical, theoretical and technological knowledge and understanding of combustible dust Ex environments• Understands the requirements, materials and equipment considerations, in relation to working in combustible dust Ex environments and also understands the benefits of good housekeeping
Skills	<ul style="list-style-type: none">• Practical skills in engineering assembly of a complexity consistent with that of a level 3 craftsperson• Apply safe working practices including safe isolation to meet the requirements of statutory and non-statutory regulations.• Safely install, inspect, test, commission, diagnose and correct faults in electrical plant, instrumentation, associated cabling, cabling supports and equipment.• Select, gland & terminate industrial type cables to a suitable component and associated cable tray in line with details on the appropriate specification.• Interpret manufacturers documentation and certification standards for correct installation maintenance and inspection• Select and install a variety of Ex certified cable glands.• Understand the principles of electrical protection concepts including selection, installation and maintenance• Understands intrinsically safe concept of protection and installation including the importance of documentation.• Inspect new and existing equipment in accordance with appropriate inspection techniques relevant to the different grades of inspection
Experience	<ul style="list-style-type: none">• 2 + years' experience operating in a site / industrial environment• Installing, inspecting, testing and/or maintaining equipment in an industrial setting
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Level 3 ECS Gold Card, National Diploma or equivalent in Electrotechnical and/or Instrumentation• All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Fuel Forecourts (Ex07 – Ex08)

qualification has been designed for electrotechnical workers who operate in fuel forecourts. This qualification consists of two units which cover the minimum requirements for safe working practices in these locations. It is suitable electrotechnical personnel who are involved in selecting, installing, inspecting, testing and maintaining the electrical installation, including certified Ex electrical equipment, in locations where gases and vapours can potentially create a hazardous area within a fuel forecourt environment.

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Knowledge	<ul style="list-style-type: none">• Knows the relevant legislative, regulatory, local requirements• Understands procedures for safe working practice and systems of work in a commercial or industrial setting• Able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals• Understands the hierarchy of responsibilities in relation to reporting and decision-making• Understands the need for and methods of achieving safe working practice in fuel filling Ex environments.• Has practical, theoretical and technological knowledge and understanding of Ex fuel filling environments• Understands the requirements, materials and equipment considerations, in relation to working in Ex fuel filling environments• A working knowledge of the APEA “blue book” 4th edition 2018 (5th edition pending)
Skills	<ul style="list-style-type: none">• Practical skills in engineering assembly of a complexity consistent with that of a level 3 craftsperson• Apply safe working practices including safe isolation to meet the requirements of statutory and non-statutory regulations.• Safely install, inspect, test, commission, diagnose and correct faults in electrical plant, instrumentation, associated cabling, cabling supports and equipment.• Select, gland & terminate industrial type cables to a suitable component and associated cable tray in line with details on the appropriate specification.• Interpret manufacturers documentation and certification standards for correct installation, maintenance and inspection• Select and install a variety of Ex certified cable glands.• Understand the principles of electrical protection concepts including selection, installation and maintenance• Understands intrinsically safe concept of protection and installation including the importance of documentation.• Inspect new and existing equipment in accordance with appropriate inspection techniques relevant to the different grades of inspection
Experience	<ul style="list-style-type: none">• 2 + years' experience operating in a site, commercial or industrial environment• Installing, inspecting, testing and/or maintaining Equipment in a commercial or industrial setting
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Level 3 ECS Gold Card, National Diploma or equivalent in Electrotechnical and/or Instrumentation• All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Water Utilities (Ex09 – Ex10)

This qualification has been developed for electrical and instrument operatives working in water supply, wastewater and water treatment sectors where gas, vapours and hazardous dust can potentially create a hazardous environment. It is suitable for workers who operate in the water utilities industry, particularly in intake and storage areas of wastewater treatment plants, wastewater pumping stations, wet wells and gravity fed sewers where there is a risk of explosion.

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Knowledge	<ul style="list-style-type: none">• Knows the relevant legislative, regulatory, local requirements• Understands procedures for safe working practice and systems of work in an industrial setting• Able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals• Understands the hierarchy of responsibilities in relation to reporting and decision-making• Has practical, theoretical and technological knowledge and understanding of water industry Ex environments• Understands the need for and methods of achieving safe working practice in water industry Ex environments.• Understands the requirements, materials and equipment considerations, in relation to working in water industry Ex environments• A working knowledge of WIMES and water industry related specifications
Skills	<ul style="list-style-type: none">• Practical skills in engineering assembly of a complexity consistent with that of a level 3 craftsperson• Apply safe working practices including safe isolation to meet the requirements of statutory and non-statutory regulations.• Safely install, inspect, test, commission, diagnose and correct faults in electrical plant, instrumentation, associated cabling, cabling supports and equipment.• Select, gland & terminate industrial type cables to a suitable component and associated cable tray in line with details on the appropriate specification.• Interpret manufacturers documentation and certification standards for correct installation, maintenance and inspection.• Select and install a variety of Ex certified cable glands.• Understand the principles of electrical protection concepts including selection, installation and maintenance• Understands intrinsically safe concept of protection and installation including the importance of documentation.• Inspect new and existing equipment in accordance with appropriate inspection techniques relevant to the different grades of inspection
Experience	<ul style="list-style-type: none">• 2+ years' experience operating in a Water Industry Ex environment, installing, inspecting, testing and/or maintaining Ex Certified equipment
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Level 3 ECS Gold Card, National Diploma or equivalent in Electrotechnical and/or Instrumentation• All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Mechanical (Ex11)

This qualification has been developed for mechanical operatives working in hazardous locations where gases, vapours or dusts can form explosive atmospheres. It is suitable for practicing mechanical operatives who are involved in installing, inspecting and maintaining non-electrical (mechanical) equipment in locations where gases, vapours and/or dusts can potentially create a hazardous area.

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Knowledge

- Knows the relevant legislative, regulatory, local requirements
- Understands procedures for safe working practice and systems of work in an industrial setting
- Able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals
- Understands the hierarchy of responsibilities in relation to reporting and decision-making
- Understands the need for and particular methods of achieving safe working practice in Ex environments.
- Has practical, theoretical and technological knowledge and understanding of Ex environments
- Understands the requirements, materials and equipment considerations, in relation to working in Ex environments

Skills

- Apply general safe working practices.
- Accurately measure test components with micrometres, verniers and Dial Test Indicator and record results
- Disassemble, clean, inspect and repair a range of mechanical components as per manufacturers specifications including rotating equipment such as fan assemblies, gearboxes, pumps and linier elements such as double acting pneumatic cylinders
- Strip down, check dimensions, replace seals, and rebuild rotating equipment such as centrifugal pumps
- Dismantle, assemble and hand torque flanged joints, including inspection of flanges, fault reporting, and securing a flanged pipework joint as per a specified drawing and within set tolerances
- Safely assemble, install, maintain, test, repair and disassemble mechanical equipment and systems, working safely in Ex environments

Experience

- 2 + years' experience operating in a site / industrial environment
- Installing, inspecting, testing and/or maintaining Equipment in an industrial setting

Preparation

- Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications
- Minimum entry level requirements we suggest are:
 - National Diploma , NVQ Level 3 or equivalent in a technical subject e.g. mechanical, operations, technical services, multiskilled engineering, maintenance in mechanical engineering or multiskilled engineering
- All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Application Design Engineer (Ex12)

This qualification has been developed to validate the core competency of application design engineers who specify electrical equipment within hazardous areas. It is suitable for aspiring or practising application design engineers who have experience of selecting Ex certified electrical equipment for installations in locations where there is potential for explosive atmospheres to exist.

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Knowledge	<ul style="list-style-type: none">• Has an understanding and is able to read and interpret engineering drawings• Able to interpret manufacturer's data for electrical equipment relevant to its application in an Ex area• Evaluate the performance of equipment, assemblies or systems of relevance to application in Ex areas• Should have a working knowledge of the relevant parts of IEC 60079 Part 14• Have a level of understanding that is equivalent to or exceeds ExF• Understand those aspects of equipment design which affect the installation of Ex equipment of IEC 60079 Part 14• Understanding those aspects of equipment design which affect inspection and maintenance requirements of IEC 60079 Part 14
Skills	<ul style="list-style-type: none">• No practical skills required• Be able to analyse data effectively
Experience	<ul style="list-style-type: none">• A good understanding of basic electrical application design practice.• Have at least 2 years' experience working in Ex environments
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Minimum Academic route, HNC, HND, Degree in Engineering or relevant demonstratable knowledge and experience.• All candidates have full access to the CompEx Knowledge Hub for additional learning and development

Responsible Person (Ex14)

This qualification has been developed for persons in senior supervisory roles, such as those responsible for managing staff, processes and procedures relating to potentially explosive atmospheres, electrical and non-electrical (mechanical) equipment, protective systems and installations. It is suitable for persons in managerial or supervisory roles who are directly responsible for the management of staff (including sub-contractors), processes and procedures relating to explosive atmospheres, such as, equipment, protective systems and installations.

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Knowledge	<ul style="list-style-type: none">• Has a general understanding of relevant electrical engineering.• Understands Safe systems of work including Permit to work• Has a basic understanding of the importance of equipment inspection• Aware of responsibilities under HSE COMAH (UK or equivalent)• Read and assess relevant engineering drawings• Has practical understanding of explosion protection principles and techniques• Has a working knowledge and understanding of the relevant standards in explosion protection.• Has a knowledge of quality assurance, including the principles of auditing, documentation, traceability of measurement and instrument calibration
Skills	<ul style="list-style-type: none">• No practical skills required• Appreciation of the impact that installation, inspection and maintenance will have on plant/site operations.
Experience	<ul style="list-style-type: none">• 2+ years' experience of supervising or managing people, processes and procedures in Ex environments• 2+ years' experience of electrical and/or mechanical equipment, systems and installations
Preparation	<ul style="list-style-type: none">• Candidates choosing to undertake this qualification, subject to knowledge, skill and experience may benefit from first undertaking the CompEx Foundation or Foundation Plus qualifications• Minimum entry level requirements we suggest are:<ul style="list-style-type: none">• Minimum Academic route, HNC, HND, Degree in Engineering or relevant demonstratable knowledge and experience.• All candidates have full access to the CompEx Knowledge Hub for additional learning and development