

15 Hazardous Areas and Explosive Ordnance Areas Installations

15.1 Background

- 15.1.1 This Chapter references the relevant regulations and prescribes minimum requirements for the design, construction, inspection, testing and commissioning of Defence installations in hazardous areas and explosive ordnance areas.
- 15.1.2 These installations shall comply with the relevant general requirements described in other chapters of this document.

15.2 Hazardous Areas (Explosive Gas / Vapour or Combustible Dusts)

- 15.2.1 Hazardous area classification is based on flammable gases or vapours or combustible dusts forming an explosive mixture. This occurs when a sufficient quantity is mixed with air in the correct proportions. This mixture can be ignited and explode.
- 15.2.2 The hazardous area classification standards (AS/NZS 60079.10.1 and AS/NZS 60079.10.2) cannot be used to classify explosives hazardous areas.
- 15.2.3 The Hazardous Areas (HA) recognised by AS/NZS 3000:2007 are:
 - a Hazardous areas (gas or vapour) in which an explosive gas or vapour atmosphere is present or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment; and
 - b Hazardous areas in which a dust in the form of a cloud is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment.
- 15.2.4 The Australian Standards divide the above hazardous areas into hazardous area Zones 0, 1, 2, 20, 21 and 22.

15.3 Explosive Ordnance Areas

- 15.3.1 Vapours, gases or dusts of explosives do not require air to form an explosive mixture as they are inherently explosive whether airborne or not.
- 15.3.2 The classification of the explosives areas is based on the probability of the explosives material being exposed or released. It is not based on the probability of the explosives material being mixed or suspended in air to form an explosive mixture.
- 15.3.3 Explosives already contain an oxidant to form an explosive mixture which can be ignited and explode in any quantity. They are explosive without air.
- 15.3.4 Explosive Ordnance (EO) areas or Explosives Areas (EA) are areas used for the handling, processing and storing of explosive ordnance.

Restricted Electrical Areas

- 15.3.5 A Restricted Electrical Area (REA) is an area which contains explosive ordnance where the explosives substances are not exposed.

Explosives Hazardous Areas

- 15.3.6 An Explosives Hazardous Area (EHA) is an area in which explosives substance(s) may be exposed.

15.4 Objectives

- 15.4.1 The objectives of this chapter are to:
- a Reference the relevant Regulations containing the compliance requirements for hazardous areas and explosives ordnance areas installations, and
 - b Prescribe other Defence specific requirements.

15.5 Legislation and Regulations and Standards

- 15.5.1 The Legislation, Regulations and Standards which apply to hazardous areas and explosive ordnance areas are shown below.

Commonwealth, State and Territory Legislation

- 15.5.2 The Work Health Safety Acts, the Defence Act, the Public Service Act and the various State and Territory Electricity Safety Acts reference either directly or indirectly, the instructions and regulations with which installations in hazardous areas and explosives ordnance areas must comply.
- 15.5.3 Refer to Chapter 1 for requirements related to general electrical installations.

Defence Instructions

- 15.5.4 Defence Instructions (General) - LOG 4-1-006 - Safety of Explosive Ordnance is issued under the Defence Act 1903 and the Public Service Act 1999. This instruction provides Defence policy on all aspects of EO safety. It applies to personnel in Defence including Australian Public Service employees, Defence contractors and companies undertaking outsourced Defence EO functions. These instructions reference the Defence Explosives Ordnance Publications (DEOP) which contain the EO regulations.
- 15.5.5 The relevant EO regulations for the requirements of this chapter are contained in eDEOP 101.

Regulations

- 15.5.6 Defence Explosive Ordnance Regulations contained in the Defence Explosives Ordnance Publication eDEOP 101 prescribe the requirements for installations in explosives ordnance areas.
- 15.5.7 Regulations referenced by the State and Territory legislation prescribe compliance with AS/NZS 3000.

- 15.5.8 AS/NZS 3000 prescribes minimum requirements for installations in hazardous areas.

Standards

- 15.5.9 AS/NZS 3000 and referenced standards apply for the design, construction and verification of electrical installations.

15.6 Competency Requirements

- 15.6.1 The competency requirements for the classification, design, selection, installation, testing, inspection and maintenance for Hazardous Areas are described in AS/NZS 3000, AS/NZS 60079.14 and AS/NZS 60079.17
- 15.6.2 The competency requirements for the classification, design, selection, installation, testing, inspection and maintenance for Explosives Areas are described in eDEOP 101 Regulation 6.3 Procedure 1.

15.7 Design Requirements

- 15.7.1 The design shall:
- a address the specific use and operation of the facility; and
 - b be relevant to Defence establishments; and
 - c address whole of life costs of the installation.

15.8 Specific Requirements

Classification

- 15.8.1 The responsibility for classification of a Hazardous Area or an Explosives Hazardous Area rests with the persons or parties in control of the installations.
- 15.8.2 Competent classifiers shall be used for Defence installations to accurately classify the Hazardous Area and Explosives Hazardous Area.
- 15.8.3 These classifications require acceptance by Defence when Defence is the party in control of the installations.

Dossiers

- 15.8.4 Verification dossiers are required for all Hazardous Areas and Explosives Hazardous Areas installations.
- 15.8.5 A Restricted Electrical Area Dossier is required for Restricted Electrical Area installations.
- 15.8.6 All new and altered installations shall be provided with a new dossier or an update to an existing dossier.
- 15.8.7 The completed dossiers shall comply with the requirements of AS/NZS 3000 and eDEOP 101 as apply at the time of the works.

IECEX or ANZEx Certified Equipment

- 15.8.8 The only permitted electrical equipment in Defence HA and EHA shall be IECEX or ANZEx certified.

AUS Ex Certified Equipment

- 15.8.9 AUS Ex certified equipment is not acceptable to Defence.

ATEX Approved Equipment

- 15.8.10 ATEX approved equipment is not permitted in HA and EHA.

Equipment without Acceptable Certification

- 15.8.11 Equipment without acceptable certification according to IEC Standards or AS/NZS Standards is not permitted in HA and EHA.

Conformity Assessment Documents

- 15.8.12 Conformity Assessment Documents (CAD) for equipment certified to other certification or approval schemes is not acceptable in HA and EHA.

15.9 Dispensations

- 15.9.1 Departures from the prescriptive requirements of the eDEOP 101 Regulations can only be considered upon formal application. These will be considered and may be approved by the Directorate of Ordnance Safety in exceptional circumstances.
- 15.9.2 Departures from the State and Territory Regulations cannot be granted by Defence.

15.10 Documentation

- 15.10.1 Detailed design documentation shall be provided for all new or altered installations regardless of delivery method prior to construction.
- 15.10.2 This documentation shall include the installation, inspection and testing requirements in detail for the installers, inspectors and testers.
- 15.10.3 Detailed design documentation shall include the hazardous and/or explosives hazardous area(s) classification report and drawings.
- 15.10.4 Design documentation shall fully detail the HA and EHA classification, equipment specification, installation, inspection and testing methods which will comply with the requirements of eDEOP 101 and other relevant standards.

15.11 Submissions

Evidence of Competency

- 15.11.1 Evidence of competency relevant to the work shall be provided to and acknowledged by Defence prior to proceeding with the work.

Acceptance of the Classification

- 15.11.2 Acceptance of the HA and EHA classification shall be obtained from the persons or parties in control of the installations and Defence before proceeding. The

classification shall be fully detailed in the project classification report and drawings in accordance with the Standards and Regulations.

Certificates of Electrical Safety

- 15.11.3 The customer's copy of the Certificate of Electrical Safety (required by the Statutory Electrical Safety Regulator) shall be provided to Defence.

15.12 Validation

- 15.12.1 The following aspects shall be validated at the appropriate time during the project where works involve electrical installations in HA or EHA:
- a The required competencies are met; and
 - b the design meets the functional requirements; and
 - c the installation is consistent with the design; and
 - d verification dossier meets the minimum requirements of the Standards and Regulations; and
 - e the as-built documentation accurately reflects the installation.

15.13 Audits

Compliance Audits of Electrical Installations

- 15.13.1 Defence may audit the EA or HA electrical installations for evidence of full compliance with the relevant Standards and Regulations.