

AS 1670.4:2024



STANDARDS
Australia



Fire detection, warning, control and intercom systems — System design, installation and commissioning

Part 4: Emergency warning and intercom systems



AS 1670.4:2024

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- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Institute of Building Surveyors
- CSIRO
- Deafness Forum of Australia
- Engineers Australia
- Engineers Australia/ Society of Fire Safety
- Fire Protection Association Australia
- Hydraulic Consultants Association Australasia
- National Electrical and Communications Association
- National Fire Industry Association
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Fire detection, warning, control and intercom systems — System design, installation and commissioning

Part 4: Emergency warning and intercom systems

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Preface

This Standard was prepared by the Standards Australia Committee FP-002, Fire Detection, Warning, Control and Intercom Systems, to supersede AS 1670.4:2018, *Fire detection, warning, control and intercom systems — System design, installation and commissioning*, Part 4: *Emergency warning and intercom systems*.

The objective of this document is to specify the design, installation and commissioning requirements for emergency warning systems and emergency intercom systems used in buildings for the evacuation of building occupants in the event of a fire or other type of emergency.

This document specifies the use of emergency warning control and indicating equipment (EWCIE) which conforms to AS 4428.16, Grade 1, and emergency intercom control and indicating equipment (EICIE) which conforms to AS 4428.4

The major changes in this revision of the document are as follows:

- (a) Revision of the definitions.
- (b) Withdrawal of legacy product standards (AS 2220.1 and AS 60849).
- (c) Referencing new editions of product standards and updating [Table 1.8](#).
- (d) Alignment of common definitions, clauses and appendices with AS 1670.1.
- (e) Removal of the dispensation to fit VADs when speech intelligibility cannot be met, except in spaces with high ambient noise.
- (f) Revise speech intelligibility requirements for car parks.
- (g) Simplified the requirements for not measuring speech intelligibility in SOUs.
- (h) Updated the terminology and measurement methods for sound pressure level and speech intelligibility.
- (i) Clarified requirements for termination of optical fibre cables used in the emergency warning and intercom system.
- (j) Clarified the application of AS 7240.13 to demonstrate compatibility.

Maintenance requirements for emergency warning and intercom systems are given in AS 1851.

Appendices have been aligned with AS 1670.1 where the topics are the same.

The terms “normative” and “informative” have been used in this Standard to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

This edition also permits the use of two editions of relevant Standards relating to components. See [Table 1.8](#) for the list of relevant editions of the Standards which apply throughout this document.

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Introduction

An emergency warning system and emergency intercom system functions as a life-safety system when it is installed within a building or site. It may utilize an emergency warning system with full manual controls (e.g. AS 4428.16, Grade 1) in combination with an emergency intercom system (e.g. AS 4428.4).

The purpose of a system installed to this document is to facilitate an orderly evacuation, relocation or direction of personnel in emergencies such as, but not limited to, fire, smoke, civil commotion, bomb threats, siege, explosion, leakage of toxic substances or fumes, and structural damage. A guide to the development of evacuation procedures is described in AS 3745.

To achieve this aim, the emergency warning and emergency intercom system has the following capabilities as appropriate:

- (a) Receive alarm signals from an emergency detection system.
- (b) Delivery of intelligible speech for emergency announcements and directions.
- (c) Provide audible, and where required, visual emergency warning signals.
- (d) Provision for automatic and manual operation.
- (e) Continuous operation under conditions of the emergency.
- (f) Independence from other systems in manual operation.
- (g) Provide means of communication between the chief warden and the floor or area wardens.

NOTES

Australian Standard®

Fire detection, warning, control and intercom systems — System design, installation and commissioning

Part 4: Emergency warning and intercom systems

Section 1 Scope and general

1.1 Scope

This document specifies requirements for the design, installation and commissioning of emergency warning and emergency intercom systems comprised of components conforming to the requirements of the applicable normatively referenced standards.

NOTE The general procedures for the use of the emergency warning and intercom systems and the response of personnel are given in AS 3745.

1.2 Application

Where the emergency warning system functions are required, they shall be installed to meet the requirements of [Sections 1, 2, 3](#) and [4](#) of this document. AS 4428.16 Grade 2 and Grade 3 emergency warning control and indicating equipment (EWCIE) shall not be used to satisfy the requirements of this document.

Where the emergency intercom system functions are required, they shall be installed to meet the requirements of [Sections 1, 2, 3](#) and [5](#) of this document.

1.3 Normative references

The following are the normative documents referenced in this document:

NOTE 1 Documents referenced for informative purposes are listed in the Bibliography.

NOTE 2 See [Clause 1.8](#) for the list of acceptable editions of the listed relevant normative references.

AS 1269, *Occupational noise management* (series)

AS 1603.17, *Automatic fire detection and alarm systems, Part 17: Warning equipment for people with hearing impairment*

AS 1670.1, *Fire detection, warning, control and intercom systems — System design, installation and commissioning, Part 1: Fire*

AS 4428.4, *Fire detection, warning, control and intercom systems—Control and indicating equipment, Part 4: Emergency intercom control and indicating equipment*

AS 4428.16, *Fire detection, warning, control and intercom systems—Control and indicating equipment, Part 16: Emergency warning control and indicating equipment*

AS 7240.4, *Fire detection and alarm systems: Part 4: Power supply equipment (ISO 7240 4:2017, MOD)*

AS 7240.13, *Fire detection and alarm systems: Part 13: Compatibility assessment of system components*

AS/NZS 3000, *Electrical installations* (known as the Australian/New Zealand Wiring Rules)

AS/NZS 3013, *Electrical installations—Classification of the fire and mechanical performance of wiring system elements*

AS/NZS 62368.1, *Audio/video, information and communication technology equipment, Part 1: Safety requirements (IEC 62368-1:2018 (ED3.0), MOD)*

AS ISO 7240.11, *Fire detection and alarm systems, Part 11: Manual call points*

AS ISO 7240.17, *Fire detection and fire alarm systems: Part 17: Transmission path isolators*

AS ISO 7240.18, *Fire detection and fire alarm systems: Part 18: input / output devices*

AS ISO 7240.23, *Fire detection and alarm systems: Part 23: Visual alarm devices*

AS ISO 7240.24, *Fire detection and alarm systems, Part 24: Fire alarm loudspeakers*

AS IEC 61672.1, *Electroacoustics — Sound level meters: Part 1: Specifications*

AS/CA S009, *Installation requirements for customer cabling (Wiring rules)*

IEC 60268-16, *Sound system equipment — Part 16: Objective rating of speech intelligibility by speech transmission index*

ISO 3382-2, *Acoustics — Measurement of room acoustic parameters — Part 2: Reverberation time in ordinary rooms*

1.4 Terms and definitions

For the purpose of this Standard the definitions given in AS 2484.2, AS ISO 7240.1, the National Construction Code (NCC) and those below, apply:

1.4.1

acoustically distinct space

space within a building where the acoustic properties are consistent, i.e. reverberation time and background noise

1.4.2

adjacent

side-by-side but not necessarily touching

1.4.3

alert signal

audible signal, a visual signal, a tactile signal or any combination of these, that alerts designated chief and area/floor wardens of a hazardous or dangerous situation

Note 1 to entry: The alert signal is specified in AS 4428.16. Other tones or signal patterns are allowed if more appropriate for use for other emergencies.

1.4.4

amplified loudspeaker

loudspeaker conforming to AS ISO 7240.24 and an amplifier conforming to AS 4428.16 incorporated in a single enclosure

1.4.5

amplifier channel

individual amplification path with discreet input and output that is part of an amplifier

1.4.6

baseline data

data derived from the final design, installation and commissioning

1.4.7**circulation space**

areas within a building that are used for pedestrian travel

Note 1 to entry: Examples of areas used for pedestrian travel include a passage way, corridor, hallway, stairway, lobby, atrium, an open plan office, enclosed walkway, mall, shop, areas that provides an exit path from a room or into another room, paths of travel to exits in loading docks, designated paths of travel leading to exits from car spaces in car parks, and other paths of travel to exits.

1.4.8**connectable device**

device not conforming to a component Standard listed in [Clause 2.1.2](#), the operation or failure of which will not jeopardize the performance of the EWIS

Note 1 to entry: For example, tactile devices, nurse call systems, and building management control system.

1.4.9**control and indicating equipment**

component as defined in AS ISO 7240.1

EXAMPLE	EXAMPLES EWCIE, EICIE and FDCIE
---------	---------------------------------

1.4.10**customer cabling**

as defined by AS/CA S009

1.4.11**detection zone**

area protected by one or more detectors which provides a unique common identification at the FDCIE

1.4.12**distributed part of CIE**

parts of an EWCIE or EICIE which are remotely located from the EWCIE or EICIE within an EWIS

1.4.13**emergency detection system**

system capable of detecting an emergency condition such as fire, security, gas, explosives and then initiating an emergency warning

1.4.14**emergency manual call point**

white manual call point used to initiate an EWS emergency condition, which is not to be red and not to be marked FIRE or use a fire pictogram

Note 1 to entry: This is in conformity with AS ISO 7240.11.

1.4.15**emergency plan**

written documentation of the emergency arrangements for a site, generally prepared during the planning process and consists of the preparedness, prevention and response activities and includes the agreed emergency roles, responsibilities, strategies, systems and arrangements

1.4.16**emergency services personnel**

term used in place of "fire brigade"

1.4.17**emergency warning signal**

alert signal or evacuate signal with or without pre-recorded speech message or live speech

1.4.18**emergency zone**

whole or part of a building designated for the controlled evacuation of occupants in an emergency

Note 1 to entry: The term “emergency zone” supersedes the term “evacuation zone” used in AS 3745.

1.4.19**evacuate signal**

audible signal, a visual signal, a tactile signal or any combination of these that indicates the need for the immediate evacuation of an emergency zone

Note 1 to entry: It is recommended that the default 520 Hz tone as defined in AS 4428.16 be used. Other tones are allowed that may be more appropriate where the ambient noise will mask the 520 Hz tone.

Note 2 to entry: Assessment of the need for a silence period is recommended, as specified in ISO 8201, to allow for communication between floor wardens and occupants or to allow orientation.

1.4.20**extra-low voltage (ELV)**

<customer cable> cable carrying a voltage defined as extra-low voltage (ELV) in AS/CA S009

1.4.21**fire detection and alarm system****FDAS**

equipment including control and indicating equipment, which when arranged in a specified configuration, is capable of detecting, indicating a fire and giving signals for appropriate action

1.4.22**fire detection control and indicating equipment****FDCIE**

component conforming to AS 7240.2

1.4.23**fire-isolated**

separated by fire resisting construction with a minimum FRL of -/60/30

1.4.24**habitable room**

as defined by the NCC

1.4.25**input/output device**

an interface component conforming to AS 7240.18 connected to CIE

1.4.26**live speech**

verbal message delivered by the use of an emergency microphone

1.4.27**low voltage (LV) (power)**

voltage as defined in AS/NZS 3000

Note 1 to entry: Note 1 to entry: Generally used for the supply of mains power to equipment.

1.4.28**low voltage (LV) (telecommunications)**

LV used for telecommunications where the voltage or current under normal operating conditions or single fault conditions exceeds ES2 limits as defined in AS/NZS 62368.1

1.4.29**low voltage (LV) telecommunications transmission path**

LV <customer cable> used for telecommunications where the voltage or current under normal operating conditions or single fault conditions exceeds ES2 limits as defined in AS/NZS 62368.1

1.4.30**networked CIE**

CIE which receives or transmits information from other CIE

Note 1 to entry: See [Clause 2.3](#).

1.4.31**occupied space**

space that is readily accessible for occupation, transit or service

Note 1 to entry: The following are not considered to be occupied space:

- (a) Fire-isolated ramps.
- (b) Fire-isolated passageways.
- (c) Fire-isolated stairways.
- (d) Balconies or the like not defined by the NCC as occupiable outdoor areas.
- (e) Occupiable outdoor areas in Class 2, 3, 4 and 9c SOUs.
- (f) Spaces within SOUs that are not habitable rooms in Class 2, 3 and 4 parts of buildings.

1.4.32**phased evacuation**

pre-configured automatic sequence to broadcast emergency warning signals to the emergency zones

1.4.33**remote access**

temporary connection of connectable devices to an CIE from a location physically distant from the CIE and where the connection is achieved by, but not limited to, the use of cellular technology, internet-based technology, radio frequency technology, or any combination

Note 1 to entry: Connection of connectable devices to conduct testing and maintenance in accordance with AS 1851 within the same building as the CIE is not considered remote access.

1.4.34**required**

indicates that a statement is mandatory

1.4.35**reverberation time****RT**

time, in seconds, taken for a sound within a space to decay by 60 dB after the sound source has stopped

1.4.36**shall**

indicates that a statement is mandatory

1.4.37**should**

indicates a recommendation

1.4.38
sound pressure level
SPL

logarithmic ratio of the acoustic pressure measured to the reference pressure of 20uPa expressed in decibels (dB)

1.4.39
supervised
monitored for fault conditions in the quiescent condition

1.4.40
time aligned
where the acoustic output of two or more loudspeakers arrive at a receiver within 30 ms of each other

1.4.41
transmission path
connection, external to cabinets, between parts of an EWS/EIS for transmission of information or power

Note 1 to entry: Examples include electrical cables, fibre optic cable and electromagnetic radiation (radio, microwave, and infrared light).

1.4.42
transmission path fault
condition in the transmission path that prevents the correct transfer of information or power

1.5 Abbreviations

CIE	Control and Indicating Equipment
ECO	Emergency control organization
EDS	Emergency Detection System
EICIE	Emergency Intercom Control and Indicating Equipment
EIS	Emergency Intercom System
ELD	End of line device
ELV	Extra low voltage
EWCIE	Emergency Warning Control and Indicating Equipment
EWIS	Emergency Warning and Intercom System
EWS	Emergency Warning System
FBP	Fire brigade panel
FDAS	Fire Detection and Alarm System
FDCIE	Fire Detection Control and Indicating Equipment
FOBOT	Fibre optic breakout tray
LV	Low voltage
MCP	Manual call point

NCC	National Construction Code (the relevant part of the Building Code of Australia)
PSE	Power Supply Equipment
STI	Speech Transmission Index
STIPA	Speech Transmission Index for Public Address
SPL	Sound Pressure Level
RT	Reverberation Time
TP	Transmission path
TPI	Transmission path isolator
VAD	Visual alarm device
VWD	Visual warning device
WIP	Warden Intercom Point

1.6 Measurements

1.6.1 Tolerance

If a specific tolerance or deviation limit is not specified in a requirement or test procedure, then a tolerance of $\pm 5\%$ shall be applied.

Measurement of STI shall not be subject to the above tolerance

Where SPL is measured a tolerance of ± 0.5 dB shall be applied.

1.6.2 Spacing

When determining the location of devices, measurement shall be taken from the centre line of the device.

1.7 System design

1.7.1 General

The emergency warning and emergency intercom systems shall be designed to the requirements of [Sections 1 to 3](#). For emergency warning systems, [Section 4](#) shall also apply. For emergency intercom systems, [Section 5](#) shall also apply. The system design shall include the details and documentation for both installation and commissioning of the system.

NOTE This document requires various labels on components of the EWIS. See [Appendix J](#) for a checklist of lettering heights.

1.7.2 Baseline data

The design, installation and documentation of the final design shall be provided. Commissioning documentation shall be provided as validation of the final installation. This baseline data will facilitate the routine service of the system and validation of its ongoing performance.

The baseline shall be provided and the data shall include, but not be limited to, the following:

- (a) Site identifier.

- (b) Address.
- (c) Building number or name (if applicable).
- (d) System scope: An alteration to an existing system or a new system.
- (e) Type of system: Grade 1, with or without EIS.
- (f) Design reference (as applicable): AS 1670.4, the NCC Deemed-To-Satisfy or a performance solution.
- (g) The fire safety engineering report (FSER) reference if a performance solution is applied.
- (h) Evidence that the components used within the system meets the required component Standards.
- (i) Evidence that the components or connectable devices are compatible in the configuration as installed.
- (j) Functional description and final design drawings (as built) showing the installed system layout (building plans), equipment type, location, reference SPL and zone designation, and transmission paths. See examples in [Appendix D](#) using symbols in [Figure D.1](#).
- (k) Any applicable design requirements for —
 - (i) the distribution of warning signals for hearing impaired via means other than loudspeakers, e.g. hearing augmentation systems;
 - (ii) main and other CIE and data transmission; and
 - (iii) competing sound systems isolation requirements.
- (l) Systems interface diagram.
- (m) Cause and effect statement for each system interface function.
- (n) List of all system components, their location, type, unique system designation and descriptor.
- (o) List of each system component having a fixed service life, nominating the service life expiry date.
- (p) List of any connectable equipment.
- (q) Manuals for all CIE and system components (as applicable).
- (r) Amplifier rated output; impedance (Ω) and power (W).
- (s) Measured impedance (Ω) and power load (W) and reference SPL of each loudspeaker transmission path.
- (t) Completed Designer Statements, Installer Statement and Commissioning Statement.
NOTE See examples in [Appendix E](#), [Appendix F](#) and [Appendix G](#) respectively.
- (u) Table of each supplementary warning device.
- (v) Power supply requirements including the following:
 - (i) Mains nominal voltage and source (if applicable).
 - (ii) Standby time (72 h or 24 h).
 - (iii) Standby power source, nominal voltage and capacity and the compensation factor used if installed outside an average temperature of 15 °C–30 °C.

- (iv) System quiescent current (mA), including monitoring loads if applicable.
- (v) System full load current (mA).
- (vi) Load current of each connectable device transmission path.
- (vii) PSE main power source maximum rated load current during quiescent condition and during emergency warning condition (refer to AS 7240.4).
- (viii) PSE charger maximum standby battery capacity supported (refer to AS 7240.4).

Copies of EWIS documentation and baseline data shall be consolidated and housed in or adjacent to the CIE without interfering with the system wiring. Where this is not possible a label shall be provided on the CIE or the FDAS zone block plan identifying the location where it is stored within the building.

1.7.3 Alterations to existing systems

Alterations (including site specific data) to existing installations shall be designed and installed in accordance with the requirements of this Standard. This alteration requirement shall only apply to equipment and transmission paths which are added, removed, relocated or replaced.

Power supply requirements shall be recalculated and upgraded as necessary to ensure the system can accommodate any additional loads.

The alteration, including amplifiers, warning devices, manual call points (MCPs) and warden intercom handsets shall be compatible, only used within the limitations detailed in the component hardware documentation, and perform the required functions in accordance with this Standard.

NOTE See [Appendix A](#).

Where existing wiring is required to be joined at the CIE, fixed terminal strips utilizing clamp-type connectors shall be used. Where these joints are made outside the CIE, they shall be housed in a cabinet and labelled "EWIS" in a contrasting colour to the background with lettering size of not less than 20 mm.

In addition to updating the documentation detailed in [Appendix A](#), the emergency zone block plan (see [Clause 3.3.5](#)) shall be revised to include the alterations.

The alterations shall be tested to demonstrate correct operation and ensure that it does not affect the operation of the existing installation.

1.8 Application of normative references

[Table 1.8](#) lists those Standards which have more than one edition that may be used to meet the requirements of this document.

Table 1.8 — Acceptable editions of Standards

Standard	Acceptable edition
AS ISO 7240.24	2018, 2015

Section 2 System configuration

2.1 Components

2.1.1 General

EWIS components shall conform to at least one of the component Standards listed in the normative references in [Clause 1.3](#). EWIS components shall be installed in the format detailed in the hardware documentation including any limitations of use identified and the compatibility of the components with the CIE.

Components installed within the EWIS shall be compatible in the configuration in which they are installed. Where evidence of suitability is not provided within the component hardware documentation or product listing certificate, AS 7240.13 shall be used to confirm the compatibility of components.

NOTE 1 Components should be appropriate for the environment in which they are installed, as they may be exposed to extreme temperatures, dampness, dust, corrosion, vibration, shock and flammable or explosive atmospheres.

Components installed within the EWIS shall be compatible in the configuration in which it is installed.

NOTE 2 AS 7240.13 may be used to confirm the compatibility of components.

2.1.2 Components emergency warning system (EWS)

The emergency warning system shall comprise components conforming to the following:

- (a) EWCIE in accordance with AS 4428.16 Grade 1.
- (b) Manual call points (MCP) in accordance with AS ISO 7240.11.
- (c) Loudspeakers in accordance with AS ISO 7240.24 or amplified loudspeakers (see [Clause 1.4.5](#)).
- (d) VADs in accordance with AS ISO 7240.23, if installed.
- (e) Warning equipment for people with hearing impairment in accordance with AS 1603.17, if installed.
- (f) Transmission path isolators (TPIs) in accordance with AS ISO 7240.17, if installed.
- (g) Audio splitters in accordance with AS 4428.16, and where field mounted, also in accordance with AS ISO 7240.18.

All the above components shall be permanently fixed in position.

2.1.3 Components emergency intercom system (EIS)

The emergency intercom system shall comprise components conforming to the following:

- (a) EICIE to AS 4428.4.
- (b) Warden intercom point (WIP) handset to AS 4428.4.
- (c) Transmission path isolators (TPIs) in accordance with AS ISO 7240.17, if installed.

The EICIE shall be independent of the FDCIE, and may be integrated with the EWCIE.

NOTE Combining equipment into a single cabinet does not remove the requirement for independent operation.

2.1.4 EWS as part of a FDAS

Where an emergency warning system is installed to meet the requirements of AS 1670.1:2024 Clause 3.17.1(a) the following shall apply:

- (a) Each building which contains a FBP shall be protected by an EWCIE.
- (b) EWS in each building shall be capable of independent operation without reliance on CIE in any other building.
- (c) Manual operation of the EWS shall be independent of the FDCIE.
- (d) FDAS shall operate as an EDS.

NOTE An emergency warning system installed to meet the requirements of AS 1670.1:2024 Clause 3.17.1(b) does not meet the requirements of this document.

2.1.5 Connectable devices

Where connectable devices such as data terminals, colour graphic displays and building monitoring and control systems (BMCS) are connected to the EWIS the following requirements shall be met:

- (a) The operation of the EWIS shall not be reliant on the connectable devices.
- (b) Failure of any connectable devices shall not adversely affect the correct operation of the EWIS.
- (c) All transmission path connections and interfaces to connectable devices shall be installed in accordance with AS/CA S009.

NOTE AS/CA S009 states that it should be read in conjunction with AS/CA S008.

- (d) Compatibility of the connectable devices with the CIE has been assessed.
- (e) Connectable devices shall not have remote access to Access Level 3 and Access Level 4 functions as defined in AS 4428.16 without manually enabling Access Level 3 and Access Level 4 directly at the CIE.
- (f) Remote: diagnostics, and routine service shall be permitted where the system provides a means to terminate remote access at the CIE. In any case, remote access shall be automatically terminated within 1 h of inactivity. The access level requirements of the applicable product standard (see [Clauses 2.1.1](#) and [2.1.2](#)) shall apply as if these functions were being performed at the CIE.
- (g) It shall not be possible to activate, silence, disable or reset the CIE via remote access.

Where a manufacturer asserts product connectability and compatibility based on either prediction or inhouse testing and assessment to meet the above requirements, the manufacturer shall provide a product technical statement detailing the methodology, assessment protocols and calculations upon which such assertions are made.

Where a product technical statement is not provided AS 7240.13 shall be used to confirm the connectable device meets the above requirements.

NOTE Refer to NCC evidence of suitability requirements for product technical statements

2.2 Emergency zone limitations

An emergency zone shall be determined by system design.

2.3 Networked CIE

Where CIE receives or transmits information to or from other CIE, the following requirements apply:

- (a) Where a main CIE is connected to other CIE, the main CIE shall display the full status of other CIE.

NOTE Full status includes status of all emergency zones, faults, disablements and power supply failures.
- (b) Faults, disablements and power supply failure from another CIE shall be indicated at the main CIE within 100 s.
- (c) Other CIE shall only be controlled from itself or from the main CIE.
- (d) CIE protecting a building shall be capable of independent operation, without reliance on CIE in other buildings.
- (e) CIE not requiring interrogation by emergency personnel shall be labelled EWIS in no less than 20 mm high letters.
- (f) All emergency zones protected by a CIE shall be accessible from the area served by that CIE except CIE not requiring an interrogation.
- (g) Transmission paths between networked CIE shall meet the requirements of [Clause 2.5](#).

2.4 Distributed parts of CIE

Where distributed parts of CIE are installed in locations remote to the CIE the following shall apply:

- (a) Requirements of [Clause 2.3](#) shall not apply. The emergency warning signals shall be broadcast within 3 s from receiving an alarm signal as specified in AS 4428.16.
- (b) Where distributed parts of the CIE requires operation by the emergency services it shall meet the requirements of [Clause 3.3](#).
- (c) Where distributed parts of the CIE does not require operation by emergency services it shall be fire-isolated from occupied spaces or enclosed in a steel or cast iron cabinet at least 1 mm in thickness. The cabinet shall be labelled "EWIS" in 20 mm letters.
- (d) Transmission paths between distributed parts of the CIE meet the requirements of [Clause 2.5](#).
- (e) Failure of a distributed part of CIE shall not inhibit the correct operation of other distributed parts of CIE.

2.5 Transmission path faults

A single transmission path fault shall not prevent the operation of more than one of the following:

- (a) One area of emergency warning covering not more than one level and not more than 2 000 m².
- (b) One WIP.
- (c) One emergency zone alarm input.
- (d) One emergency zone of MCP(s) connected to the EWCIE.
- (e) One emergency zone emergency condition indication.
- (f) Addressable input/output devices not associated with functions in Items (a), (b), (c), (d) and (e) above.