



Consultant Specifications

EV3000



EARLY WARNING & INTERCOMMUNICATIONS SYSTEM

*“ Our aim is to provide ‘ **Consistently Excellent Service** ’ in the eyes of our customers ”*

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NON DISCLOSURE AGREEMENT

This contract has been entered into by the person or company user of this document (hereafter called the Trader) and Ampac Technologies (hereafter called Ampac) of 97 Walters Drive, Osborne Park Western Australia 6017. Under terms and conditions as specified hereunder.

Whereas Ampac and the Trader for their mutual benefit and pursuant to a working relationship which may be established, anticipate that Ampac will disclose in the form of this document, information of a secret, or confidential or proprietary nature (hereinafter collectively referred to as Proprietary Information).

Whereas Ampac desires to ensure that the confidentiality of any Proprietary Information is maintained in accordance with the terms of this Agreement;

NOW, THEREFORE, in consideration of the foregoing premises, and the mutual covenants contained herein, the Trader hereby agrees as follows:

1. The Trader shall hold in trust and confidence, and not disclose to any person outside its organisation, any Proprietary information which, is disclosed to the Trader by Ampac under this Agreement. Proprietary Information disclosed under this Agreement may be used by the Trader only for the purpose of carrying out work on or with Ampac supplied equipment and may not be used for any other purpose whatsoever.
2. The Trader shall disclose Proprietary Information received by Ampac under this Agreement to persons within its organisation only if such persons are legally bound in writing to protect the confidentiality of such Proprietary Information.
3. The undertakings and obligations of the Trader under this Agreement shall not apply to any Proprietary Information which:
 - (a) is disclosed in a printed publication available to the public, is described in patent anywhere in the world, or is otherwise in the public domain at the time of disclosure;
 - (b) is generally disclosed to third parties by Ampac without restriction on such third parties;
 - (c) is shown by the Trader to have been in its possession prior to the receipt thereof from Ampac;
 - (d) is approved for release by written authorisation of Ampac; or
 - (e) is not designated by Ampac in writing or by appropriate stamp or legend to be of a secret, confidential or proprietary nature.
4. This Agreement will be binding upon and inure to the benefit of the parties hereto, and their respective successors and assigns.
5. This Agreement, and all rights and obligations hereunder, shall expire on the 10th anniversary of the date of issue of this document.

These terms are accepted by the Trader on receipt and retention of this document.

GLOSSARY OF TERMS

BGM	:	BACKGROUND MUSIC
COMMS	:	COMMUNICATIONS
EAID	:	EMERGENCY ALARM INITIATING DEVICE
ECP	:	EMERGENCY CONTROL PANEL
EIS	:	EMERGENCY INTERCOMMUNICATION SYSTEM
EOL	:	END OFF LINE
EVAC	:	EVACUATION
EWIS	:	EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM
EWS	:	EMERGENCY WARNING SYSTEM
FACP	:	FIRE ALARM CONTROL PANEL
MECP	:	MASTER EMERGENCY CONTROL PANEL
MIC	:	MICROPHONE
PA	:	PUBLIC ADDRESS
PCB	:	PRINTED CIRCUIT BOARD
P/S	:	POWER SUPPLY
PSM	:	POWER SUPPLY MODULE
PTT	:	PRESS TO TALK
REM	:	REMOTE
RPC	:	REMOTE PAGING CONSOLE
SECP	:	SECONDARY EMERGENCY CONTROL PANEL
TGM	:	TONE GENERATOR MODULE
VA	:	VISUAL ALARM
VDU	:	VIDEO DISPLAY UNIT
WIP	:	WARDEN INTERCOM POINT

1. GENERAL

An Ampac EV3000 Emergency Warning and Intercommunication System (EWIS) or similar approved shall be installed in accordance with this specification and drawings.

The EWIS shall comprise of two sub-systems, i.e. Emergency Warning System (EWS) and the Emergency Intercommunication System (EIS).

The prime function of an EWS is to transmit alert signals, evacuation signals and verbal address clearly and reliably via speakers in emergency zones.

The EWS shall automatically initiate evacuation procedures or be manually operated. The EWS shall also be used for non-emergency functions, such as providing background music and general PA facilities.

The EIS is a totally independent intercommunication system provided to communicate on a one to one basis from the MECP to the individual WIP's within the evacuation zones.

2. RULES AND REGULATIONS

The EWIS shall comply with the current requirements of:

- AS1851 part 10
- AS2220 part 1 and 2
- AS3000
- Building Code of Australia
- The local Fire Brigade
- All relevant authorities
- A copy of the certificate of compliance for the EWIS shall be submitted upon request for:
 - a) Emergency Control Panel (ECP)
 - b) Emergency Alarm Initiating Devices (EAID)
 - c) Visual Alarm (VA) indicators

3. SCOPE

The Emergency Warning and Intercommunication system shall comprise all necessary works including:

- Master Emergency Control Panel (MECP)
- Secondary Emergency Control Panel (SECP) where required
- Remote Paging Console (RPC) where required
- Speakers
- Visual Alarms (VA)
- Warden Intercom Points (WIP)
- Emergency Alarm Initiating Devices (EAID)
- System Cabling

4. MASTER EQUIPMENT CONTROL PANEL

The Master Equipment Cabinet shall be a wall or floor mounting cubicle with an internal swing frame designed to accommodate 19 inch rack frames (483mm). All equipment shall be serviceable via front access only, by using plug in modules, with the field terminations accessible by opening the swing frame.

The control sections of the equipment shall be secured by a locked door keyed to 003. All controls and indicators shall remain visible with the door closed.

The battery section shall be segregated from the main equipment section.

The operators manual shall be accommodated in the innerside of the locked door.

The colour finish shall be Arch White or as nominated by Consultant.

The Master Equipment Cabinet shall house three main sections; a master control panel, an emergency warning system and an emergency intercommunication system.

5. MASTER EMERGENCY CONTROL PANEL

A Master Emergency Control Panel shall contain the Auto/Manual/Isolate facility, the All Call facility and the common System Status controls and indicators.

A set of emergency operating instructions shall be mounted on the left hand side of the master control panel.

5.1 AUTOMATIC / MANUAL / ISOLATE KEY SWITCH

5.1.1 Automatic Position

In the Automatic Position the EWS shall enter the programmed evacuation sequence when an alarm signal is received from an FACP or EAID.

The switch key shall be removable only in this position.

A green indicator shall illuminate when the switch is in the automatic position.

5.1.2 Manual Position

The purpose of this position is to take manual control of the building evacuation, irrespective of the state of the alarm signals. This position shall also allow routine testing of the building alarm system and EWS.

The automatic initiation of an evacuation sequence shall be inhibited.

If the EWS has entered the evacuation sequence whilst in the AUTOMATIC position and the EWS is switched to the MANUAL position, the state of the EWS at that instant shall be held, i.e. each zone's output remains static.

If the EWS is then switched back to the AUTOMATIC position without any zone control switches being operated, the automatic evacuation sequence shall continue as normal, i.e. the evacuation sequence shall resume from the point immediately before the EWS was switched to the MANUAL position.

If the EWS is switched back to the AUTOMATIC position and the control switches have been operated, the automatic evacuation sequence shall not continue. If a new alarm input is received, this shall override the current state of the zones.

The system shall be reset (when required) by first acknowledging the FIP input, via the buzzer mute switch and then pressing the master reset switch.

5.1.3 Manual Override of Secondary Emergency Control Panels

Where an EWS has more than one ECP, any ECP shall take manual control of the EWS by turning the key-switch to the MANUAL position. Only the MECP being switched to the MANUAL position shall override any SECP with its key-switch in the manual position.

Each ECP shall be fitted with an "ECP IN CONTROL" indicator. When an ECP is switched to the MANUAL mode, the other ECP's in the EWS shall illuminate their ECP IN CONTROL indicator, including the MECP. If the MECP is then switched to MANUAL, its ECP IN CONTROL indicator shall switch off and the ECP which was previously in control shall illuminate its ECP IN CONTROL indicator.

When the key-switch at an ECP is in the manual position the alarm system fault/isolated indicator shall illuminate steady.

5.1.4 Isolate Position

This position shall not isolate FIP inputs.

This key-switch position is local to the ECP and shall not affect any other ECP's. A red indicator shall illuminate with also a System Status LED (orange) when the switch is in this position.

The ECP shall not recognise the isolated position if selected from the manual position. When selecting to isolate, the switch must be rotated from automatic, through manual, to isolate position within 1 second.

In this position the control switches and front panel indicators shall only function locally, with no zone outputs, i.e. speakers and visual alarm devices. This position will be used for training purposes.

If an ECP is in the ISOLATE position, and another Remote ECP is switched to manual, the ECP in the ISOLATE position shall illuminate its ECP IN CONTROL indicator and the control switch indicators shall reflect the status of the EWS, not local control switch selections.

If an ECP is in the ISOLATE position, and the EWS enters an evacuation sequence, the control switch indicators shall reflect the state of the EWS, not the local control switch selections. The ALARM ORIGIN INDICATORS shall reflect which zone caused the EWS to enter the evacuation sequence.

5.2 ALL CALL FACILITY

Four control switches, i.e. "ALL OFF", "ALL PA", "ALL ALERT" and "ALL EVAC" shall provide the ALL CALL facility. The selected audio channel shall be delivered to ALL the evacuation zones.

There shall be three ALL CALL indicators which reflect the all call selection. These are:

- PA
- ALERT
- EVAC

The ALL CALL inputs shall have priority over the EWS control switches. Turning the ALL CALL facility OFF (ALL OFF) shall return the EWS to its original condition.

5.3 SYSTEM STATUS CONTROLS AND INDICATORS

5.3.1 Buzzer Mute

When the BUZZER MUTE button is pressed, all outstanding alarm and fault conditions shall be acknowledged. All flashing indicators shall go steady, and the buzzer silenced. For system wide faults (see below), pressing the BUZZER MUTE at any ECP shall acknowledge the fault at all ECP's.

System wide faults are :

- amplifier / speaker line faults
- visual alarm line fault
- alarm system fault (FACP, EAID)
- communications fault
- system on batteries - if all ECP's remotely powered
- battery fault - if all ECP's remotely powered
- charger fail - if all ECP's remotely powered
- tone generator fail / microphone pre-amp fail
- module fault
- system fault
- WIP system fault
- visual line fault
- EAID line fault

5.3.2 Master Reset

Master Reset facility shall only be active when the ECP is in the Manual mode.

When pressed all zone outputs shall switch to the off channel but only if there is NO acknowledged EAID or FACP alarm signal's in the EWS.

5.3.3 Lamp Test Facility

The LAMP TEST shall be invoked by momentarily pressing the LAMP TEST button.

5.3.4 Zone Status (Fault Diagnostics)

To aid in diagnosing the type of fault on an evacuation zone, three buttons shall be included on the Master Control Panel of the ECP. These buttons shall represent the three types of evacuation zone faults that can occur, i.e. alarm system (FACP), amplifier/speaker line and visual indicator. When one of these buttons is pressed, only the zones with a fault present as represented by the push button shall have their EWS fault origin indicators illuminated. This facility shall be non latching and therefore the EWS fault origin indicators shall return to their former state when the button is released.

There are **twelve system status indicators**.

1. **Power On** the ECP is operating from mains supply
2. **System on Batteries** the ECP is operating from batteries
3. **Charger Fault** the battery charger fails
4. **Battery Fault** the battery voltage drops below the lower limit
5. **Battery Isolated** the batteries have been isolated from the battery charger
6. **Tone Fault** the signal/speech generator has failed
7. **ECP In Control** see MANUAL POSITION for the key-switch
8. **CPU Fault** whenever the microprocessor controlling the ECP is held in RESET

- | | |
|-----------------------------|---|
| 9. Comms Fault | whenever a fault is detected in the communications bus |
| 10. System Fault | whenever a module in the system has a fault. For example, if an SECP has a local power supply and the charger failed, then all the ECP's shall illuminate their module fault indicators |
| 11. Module Fault | when any module in the system has failed, i.e. ECP's, remote paging consoles, VDU/Printer etc. |
| 12. Microphone Fault | when the microphone/BGM mixer has failed |

6. EMERGENCY WARNING SYSTEM

The EWS subdivides the building into evacuation zones. Each evacuation zone shall have amplifier(s) and a number of associated speakers. In sections of the building where background noise is high, visual alarm devices shall be used in addition to speakers. Each evacuation zone may have one of four audio channels. These channels are PA, Alert signal, Evac signal and Off. The Off channel shall be configured on site (via a jumper) on a zone basis to one of the following sources :

- background music 1
- background music 2
- silence

The background music shall be disabled in an emergency situation, if the EWS is manually operated or if the mains power fails.

The EWS system shall have a microphone for the PA input, and a tone generator module (TGM) which is responsible for generating the alert and evacuation signals.

The EWS shall have three possible types of alarm signal inputs to indicate that an emergency condition is occurring in the building. These are:

- Emergency Alarm Initiating Devices (EAIDS) i.e. Manual Call Points (MCP)
- Fire Indicator Panel (FACP)
- Sprinkler flow switch (treated as FACP)

These inputs shall be grouped according to the building evacuation zones. Any number of EAID's and FACP's inputs may be assigned to any one building evacuation zone.

When an input, (i.e. EAID or FACP), initiates an alarm signal, the EWS if in automatic mode, shall initiate a preset evacuation sequence. The evacuation sequence shall sound the alert and the Evac signals to the evacuation zones within the building (and activating the visual alarm devices if installed) according to the pre-programmed evacuation sequence. The manual override shall cease the pre-programmed evacuation sequence, and output alert and Evac signals to evacuation zones as dictated via the EWS panel control switches.

The EWS shall provide full system status and fault indication facilities.

6.1 EMERGENCY WARNING SYSTEM ZONE CONTROL SWITCHES AND INDICATORS

The control switches shall allow any of the four audio channels (Music, PA, Alert or Evac) to be switched to any of the zones. The Control Switches shall be inhibited when the EWS is in the AUTOMATIC state.

Pressing any of the control switches for an evacuation zone shall automatically cancel the previous selection for that zone, i.e. only one audio channel shall be assigned to a zone at any one time.

For each evacuation zone there shall be a set of control switches and associated indicators :

➤	CANCEL	-	Control switch only
➤	PA	-	Control switch and indicator
➤	ALERT	-	Control switch and indicator
➤	EVAC	-	Control switch and indicator

6.2 EMERGENCY WARNING SYSTEM ZONE FAULT

EWS Zone Fault indicator shall flash when a fault is detected by the MAIN EQUIPMENT on any of the wiring or components associated with that zone, and go steady when the fault is acknowledged by the buzzer mute switch.

6.3 ALARM ORIGIN

Alarm Origin indicator shall flash when an input, i.e. FACP and EAID associated with that zone, has been activated and go steady when the alarm is acknowledged by the buzzer mute switch.

Fault and Alarm indicators shall not be inhibited by any key-switch operation.

6.4 SIGNAL GENERATOR

This shall generate the alert and Evac signals to comply with the AUSTRALIAN STANDARD 2220-1 SECTION 2.5.3

When the alert signal is first initiated to a zone, the signal bursts shall increase in amplitude, starting at 50db down and increasing at 10db increments to full output by the sixth step.

The Evac signal shall have four bursts of Evac signal followed by two, three second voice messages.

6.5 STANDBY/SPEECH GENERATOR

Should the main board fail, the STANDBY board shall automatically switch into circuit and the TONE fault indicator on the front panel shall illuminate.

6.6 MICROPHONE

The Microphone shall be used for the PA facility. The microphone shall have a press to talk (PTT) switch.

The microphone shall be normally disabled unless the ECP is in control, i.e. the key-switch in the MANUAL position and its ECP IN CONTROL indicator is NOT illuminated.

6.7 MICROPHONE/BACKGROUND MUSIC MIXER BOARD

The microphone preamplifier board shall accept inputs from the Panel MIC, Remote Paging MIC and two BGM Inputs.

The microphone inputs shall operate with a compression circuit and require no level adjustment. The BGM inputs shall be provided with level controls.

6.8 STANDBY MICROPHONE/BACKGROUND MUSIC MIXER BOARD

This board shall provide a complete duplicate of the main Microphone/BGM board and shall automatically switch in when the system detects a failure in the main board. The Microphone fault indicator shall also illuminate.

6.9 AMPLIFIER RACK FRAME

Each Amplifier Rack Frame shall house a maximum of eight zone amplifiers numbering from the bottom frame left hand side. Each amplifier is to be powered at 40, 120 or 240 Watts RMS 100V line to suit the speaker zone load and be totally self contained including the output transformer.

6.10 STANDBY POWER AMPLIFIER

The system shall be equipped with a minimum of 1 standby amplifiers. The standby amplifiers will automatically replace any 1 faulty amplifiers. The standby amplifiers shall be appropriately rated to handle the largest speaker zone load.

6.11 AUTOMATIC VOLUME CONTROLLER (AVC)

The system shall be equipped with automatic volume controllers complete with sensing microphones where indicated on drawings.

Each zone (where required) will comprise one AVC located in the MECP and one remote sensing microphone. The AVC and sensing microphone shall be similar to Ampac EV3050.

6.12 ZONE VOLUME ADJUSTMENT

Each Amplifier shall have a volume adjustment on the front edge of the module. This may be field adjusted to suit.

6.13 EMERGENCY ALARM INITIATING DEVICE

The EAID on the ECP shall be one of the Alarm inputs for the evacuation zone that corresponds to the section of the building where the ECP is located.

7. EMERGENCY INTERCOMMUNICATION SYSTEM

The EIS shall provide an independent communication system between the controlling ECP and a Warden Intercommunication Point (WIP).

The EIS shall perform the following from the ECP in control.

- Call individual WIP's or enter an All Call mode, where all the WIP's are called simultaneously.
- Up to 5 WIP's shall communicate in a conference mode at the control of the ECP.
- Calls to individual WIP's shall have full duplex communication.
- All Call, communication is half duplex from the controlling ECP, i.e. it shall not be possible for the WIP to communicate back to ECP in this mode.
- Any WIP can call the ECP, call is answered at the operators discretion.

7.1 EMERGENCY INTERCOMMUNICATION SYSTEM ZONE CONTROL SWITCHES AND INDICATORS

7.1.1 Warden Intercom Point Select Switch

For each WIP there shall be a select switch. When pressed for the first time it shall initiate a call to the WIP, or answer a call from the WIP. Pressing the switch a second time shall terminate the call to the WIP regardless of who initiated the call.

7.1.2 Warden Intercom Point Select Indicator

This indicator shall flash when the ECP is calling the WIP and go steady when the call is answered at the WIP. When the call is terminated, the indicator shall switch off. The indicator shall also flash when the ECP is being called from a WIP and go steady when the call is answered at the ECP.

7.1.3 Warden Intercom Point Call Buzzer

This shall sound when the ECP is being called from the WIP. The buzzer shall switch off when the call is answered or the call is terminated.

7.1.4 Zone Cleared Switch

One switch per evacuation zone shall be provided. When pressed for the first time an associated zone cleared indicator shall illuminate. Pressing the switch a second time shall turn the indicator off.

7.1.5 Warden Intercom Point Fault Indicator

For each WIP provide a fault indicator. When a fault associated with the WIP has been detected the indicator shall flash, upon acknowledgment it will go steady.

7.2 EMERGENCY INTERCOMMUNICATION SYSTEM OPERATION

7.2.1 Warden Intercom Point Calling ECP

The following shall be the procedure when initiating a call from a WIP to the ECP

- Removing the handset from the cradle at the WIP shall cause the appropriate WIP call indicator to flash at all ECP's and the WIP call buzzer to sound at all ECP's.
- A confidence tone shall be heard in the WIP handset.
- The ECP which responds to the call is referred to as the controlling ECP. The call shall be answered at the ECP by removing the handset from the cradle and pressing the WIP call switch which corresponds to that WIP. A full duplex connection between the two parties shall then be established.

7.2.2 Conference Call

If a second WIP initiates a call, the call indicator for that WIP shall flash and if the WIP call switch corresponding to the second WIP is pressed, the call indicator for the WIP shall go steady, and a conference call between the three parties is set up. Up to 5 WIP's shall be supported in this fashion. If a sixth WIP calls the ECP, the call switch of the sixth WIP is pressed, nothing shall happen, i.e. the call indicator shall remain flashing. The only way that the sixth WIP shall be answered is if one of the 5 WIP's involved in the conference call is cancelled, the sixth WIP can then take its place.

7.2.3 Completing the call by the Warden Intercom Point

If the WIP handset is placed back onto its cradle after the call is connected, the confidence tone shall sound in the ear-piece of the handset at the controlling ECP and the WIP call indicator shall switch off, completing the call.

7.2.4 Completing the call by the Emergency Control Panel

The call shall be completed at the ECP in two ways. By replacing the handset on the cradle, which shall cause the ear-piece at the WIP to go silent, i.e. no confidence tone, OR by pressing the WIP call switch which shall cause the ear-piece at the WIP to go silent, i.e. no confidence tone. In both cases the handset at the WIP shall be replaced on the cradle and then removed to reinstate the confidence tone in the WIP ear-piece.

7.2.5 Emergency Control Panel calling Warden Intercom Point

The following shall be the procedure when initiating a call from the ECP to a WIP

- The confidence tone shall be heard in the handset at the controlling ECP.
- The WIP call switch corresponding to the WIP to be called is pressed, which causes the WIP call indicator at the ECP's to flash, and the buzzer to sound at the WIP. Up to 5 WIP's can be called using this procedure.
- Once the handset is picked up at the WIP the connection is established and the WIP select indicator becomes steady.
- When the ECP is calling more than one WIP, the status of the calls, (i.e. WIP answering) shall be reflected in the WIP select indicators.

7.2.6 Emergency Control Panel to all Warden Intercom Points (All Call)

The following shall be the procedure when initiating an ALL CALL from the ECP to all WIP's :

- The confidence tone shall be heard in the handset at the controlling ECP.
- The All Call button is pressed, which shall cause all WIP call indicators at the ECP to flash.
- All WIP buzzers sound, with a 3 second or longer ON time and 3 second OFF time. This allows the warden at the WIP to distinguish between a direct call to his WIP and an All Call type call.
- When any of the WIP handsets are taken off the cradle the connection shall be made and the WIP call indicator at the ECP goes steady. Similarly as more WIP handsets are taken off the cradle, their respective call indicators at the ECP go steady.

7.2.7 Completing the All Call

Replacing the handset on its cradle (i.e. hanging up) shall cancel the ALL CALL operation. Each ear-piece in the WIP handset shall go silent. The confidence tone shall be heard in the ear-piece of the handset at the ECP.

7.2.8 Emergency Intercommunication System Controlling Emergency Control Panel

With the EWS in automatic, any ECP can be in control of the EIS by that ECP lifting its handset from its cradle. However, when the EWS is switched to the manual position the ECP which is in manual shall control the EIS.

7.3 MASTER EMERGENCY INTERCOMMUNICATION SYSTEM HANDSET

A master EIS handset and associated cradle shall be mounted on the main equipment cabinet. It will be red in colour and made from high impact plastic.

8. FAN MODULE

A Fan Module will be provided to draw air through the cabinet to maintain an acceptable working temperature for all the equipment.

The fan module shall be controlled by detecting temperature increase in the power supply or by receiving a signal or input from the EWS.

9. POWER SUPPLY / CHARGER

Provide a power supply / battery charger of modular construction. Each module is to be used in parallel and rated at 7.5 amps. As well as being modular the power supply must comply to AS2220 part 1 and 2.

Mains supply shall be 240V AC (+6% - 10%) at 50Hz and installed in accordance with AS3000 and AS1670 - 1986.

9.1 BATTERIES

Supply and install sealed lead acid batteries that comply with AS2220 part 2.

10. SECONDARY EMERGENCY CONTROL PANEL

The SECP shall be similar in construction and layout as for the MECP. All controls and indicators that appear on the MECP shall also appear and function on the SECP. Connection between the MECP and SECP shall be via a processor controlled communications link.

11. REMOTE PAGING CONSOLE

The EWIS system shall be capable of connecting to processor controlled RPC's. Each RPC shall be capable of selecting individual zones or sub-zones. Connection between the MECP and RPC's shall be via a processor controlled communications link.

12. FIELD DEVICES

All field devices shall :

- Be designed and installed in locations with a view to minimise the detrimental effects of moisture, dust, insects and other foreign materials.
- Be installed in accordance with manufactures recommendations.

12.1 SPEAKERS

All **ceiling speakers** shall :

- Have an overall maximum diameter of 200mm
- Have a multi-tap transformer
- Be supplied with a matching grill
- Be AMPAC type :

SPKC2104	- 100mm speaker recess ceiling mount
SPKGRLC0810	- 100mm grill
SPKC0982	- 100mm down light speaker ceiling mount
SPKC2110	- 200mm speaker recess ceiling mount
SPKGRLC0800	- 200mm grill

or similar approved.

All **horn speakers** shall :

- Have a minimum power rating of 10 watts
- Be reflex horn type with a multi-tap transformer
- Be AMPAC :

SPKC2027	- 10 watt horn speaker
SPKC2032	- 15 watt horn speaker
EVG0010MA1	- Connection box for horn speakers

or similar approved.

12.2 VISUAL ALARMS

All visual alarms shall :

- Have an overall diameter of 100mm
- Incorporate a xenon tube
- Be AMPAC:

STROBESL524 - Red/Amber xenon strobe light certified by SSL to AS2220-1989, or similar approved.

12.3 WARDEN INTERCOM POINTS

All warden intercom points shall :

- Be made of red high impact plastic
- Incorporate an approved WIP communication PCB
- Be AMPAC:

CHAG0014MA1 or similar approved

12.4 EMERGENCY ALARM INITIATING DEVICES

All breakglass EAID's used as EAID's shall :

- Be white in colour
- Be approved to AS2036
- Be AMPAC:

MCPD101 WHITE or similar approved

13. TESTING

The system shall be tested in accordance with AS2220 part 2 appendix E,F,G and H and the results submitted to this office as part of the as installed drawings.

13.1 SYSTEM TEST

Each ECP shall be equipped with a SYSTEM TEST button, to be used for commissioning and testing.

If the EWS system is in automatic and if at any ECP the system test button is depressed, and then the key-switch moved from auto ->manual->auto, and the system test button is released, then the zone off switches shall become active for 20 seconds. Depressing a zone off switch within 20 seconds will cause the evacuation sequence for that zone to be commenced.

The sequence shall be aborted if the key-switch at any ECP is moved, or the EWS receives an alarm input.

Similarly, if the EWS system is in the automatic mode, and at any ECP the system test button is depressed, then the key-switch is moved to the isolate position and the system test button released, the system test button shall be active for that ECP in the isolate state. With the system test button active, if it is depressed and then released, then the evacuation sequence for any zone shall commence by depressing the corresponding zone off switch within 20 seconds of releasing the system test button for the second time. The evacuation sequence shall be indication only, i.e. zone speakers and visual display devices are inhibited, and all time-outs are reduced to 5 seconds. The sequence shall be aborted if the key-switch at the ECP is moved, or the EWS receives an alarm input.

14. FAULT DIAGNOSTICS

To aid in diagnosing the type of fault in a zone, three buttons shall be included on the front panel of the ECP. These buttons shall represent the three areas of a zone where a fault can occur, i.e. alarm system, amplifier / speaker line and visual alarm line. When one of these buttons is depressed, then only the zones with a fault present in the area represented by the push button shall have their EWS fault origin indicators illuminated. This facility shall be non latching and therefore the EWS fault origin indicators shall return to their former state when the button is released. If the fault is unacknowledged, then the indicator shall flash in lieu of going steady.

15. OPERATORS MANUAL

Provide an operators manual detailing full operation of the system.

16. SYSTEM CABLING

The system cabling shall comply with the Australian Standards listed under rules and regulations of this document and follow the appropriate guidelines listed below.

16.1 Master Emergency Control Panel to Speakers

A two core cable from each MECP amplifier shall be installed to the first speaker and then looped to the other speakers in that zone. An E.O.L. resistor shall be installed across the 100V line at the last speaker of each zone.

16.2 Master Emergency Control Panel to Visual Alarms

A two core cable from the MECP shall be installed to the first pair of visual alarms and then looped to the other VA's in that zone.

16.3 Master Emergency Control Panel to Warden Intercom Point/Emergency Alarm Initiating Device

A three core cable from the MECP shall be installed to each WIP. The EAID shall connect to the WIP via a two core.

16.4 Master Emergency Control Panel to Secondary Emergency Control Panel

- Two, two core shielded audio cables
- One, two core power cable (unless powered locally)
- One, two core twisted pair shielded data cable originating from MECP extending through the protected areas and returning to the MECP.

16.5 Cable Specifications :

- Capacitance of 100 picofarads per metre or less.
- Resistance of 100 milliohms per metre or less.
- Impedance of loop typical 100 to 120 ohms.

Maximum distances between modules 1.2 Km providing cable meets above specifications.

- Recommended cable type
- Hartland HC2335 (non fire rated)
- Radox FR Communication 1.5mm 1 pair

The data cable shall be wired as a redundant loop

Master Emergency Control Panel to Remote Paging Console

- One, two core shielded audio cable
- The RPC shall connect to 240V AC
- One, two core twisted pair shielded data cable shall be installed via the RS485 data loop to the RPC

Cable Specifications :

- Capacitance of 100 picofarads per metre or less.
- Resistance of 100 milliohms per metre or less.
- Impedance of loop typical 100 to 120 ohms.

Maximum distances between modules 1.2 Km providing cable meets above specifications.

- Recommended cable type
 - Hartland HC2335 (non fire rated)
 - Radox FR Communication 1.5mm 1 pair

Master Emergency Control Panel to Fire Indicator Panel

As per manufacturer's recommendations.



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UNCONTROLLED DOCUMENT

NOTE: Due to Ampac's commitment to continuous improvement specifications may change without notice.