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Technical note: Hearing Augmentation for Queensland Government education facilities



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EXECUTIVE SUMMARY

The aim of this document is to provide a recommendation for Hearing Augmentation in DoE facilities to comply with the Deemed to Satisfy provisions of the National Construction Code (NCC).

The report states the Code requirements and sets out the functional requirements of the systems proposed.

The recommendations contain a minimum standard for general teaching and learning environments throughout DoE facilities.

Alternative systems may be proposed provided they are fit for purpose, meet or surpass the minimum standards set out within this performance specification, and can interface with government subsidised listening devices past and present technology from Hearing Australia.

SECTION 1 - HEARING AUGMENTATION

1.1 OVERVIEW

This performance specification has been developed to ensure hearing augmentation systems throughout DoE facilities are provided to a consistent standard, for all teaching and learning environments.

The information contained below addresses the NCC requirements for Hearing Augmentation within School environments. Refer NCC for additional information and correctness of compliance requirements.

Part D1 - Access and egress - Performance Requirements

The NCC Requirements (D1P9) Hearing Augmentation, states that; an inbuilt communication system for entry, information, entertainment, or for the provision of a service, must be suitable for occupants who are Deaf or hearing impaired (Deaf/Hard of hearing).

Limitations, D1P9 does not apply to:

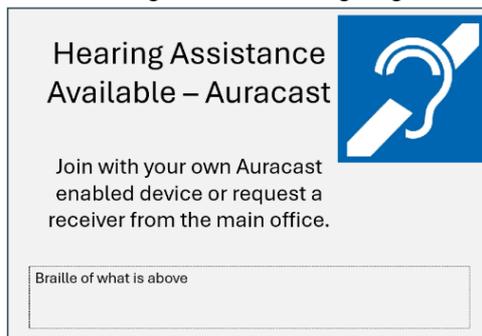
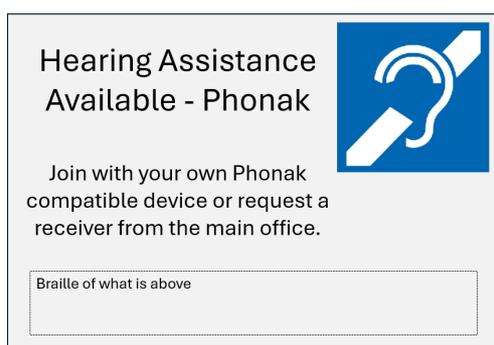
An inbuilt communication system used only for emergency warning purposes.

Part D4 - Access for people with a disability - Deemed-to-Satisfy Provisions

D4D7- Signage (For Hearing Augmentation)

In a building required to be accessible -

- Braille and tactile signage complying with Specification 15 must;
 - Incorporate the international symbol of access or deafness, as appropriate, in accordance with AS 1428.1 and identify each;
 - space with a hearing augmentation system; and
- Signage including the international symbol for deafness in accordance with AS 1428.1 must be provided within;
 - a room containing a hearing augmentation system identifying—
 - the type of hearing augmentation; and
 - the area covered within the room; and
 - if receivers are being used and where the receivers can be obtained.
- DoE preferred concept signs shown below. Select the sign to suit hearing augmentation system provided.



D4D8 - Hearing Augmentation

A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed.

Typical areas in educational facilities, which are affected, but not limited to, are;

- Teaching/learning spaces,
 - Resource spaces, staff conference rooms, etc
 - Performing Arts, Theatres and the like,
 - Sports Halls, Multi-Purpose Halls and the like.
-
- Front counters, receptions, ticket boxes and the like. (Further detailed design and review of the NCC would

be required, over and above this report). As a minimum for screened areas a desk mounted hearing loop c/w microphone, speakers and the like would be required.

Note: This report does not address full hearing augmentation criteria for areas where specialty audio visual systems are required such as Performing Arts buildings, lecture theatres, specialty music centres, front counters, receptions and the like. Further detailed design and review of the NCC would be required, over and above this report.

1.2 INBUILT AMPLIFICATION SYSTEM

An Inbuilt Amplification System is usually regarded as a system or mechanism which is built into a room or building (not portable) or fixed to a structure which contains a means of amplifying the sound being transmitted or broadcast such as through speakers or other similar devices, delivering broadcast sound.

Typical devices include:

- Projectors with built-in or standalone speaker systems,
- Televisions with built-in or standalone speaker systems,
- IFP, LCD, LED display screens, etc, with built-in or standalone speaker systems,
- Interactive whiteboards with built-in or standalone speaker systems.

The above devices would be regarded as an Inbuilt Amplification System, as would any AV system, music system, or device which is equipped to transmit sound.

1.3 LAWS, REGULATIONS & STANDARDS

Under Queensland Legislation, the Building Act 1975 and Building Regulations 2021 generally apply to all new/refurbished building work. Where a building approval is required, new building work must comply with the National Construction Code Series.

The information contained below has been extracted from the NCC 2022. Refer NCC official documents for information, correctness and full compliance.

D4D8 Hearing Augmentation

1) A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed –

- In a room in a Class 9b building; or
- In an auditorium, conference room, meeting room or room for judicatory purposed; or
- At any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider. The term "screened" refers to any physical barrier or separation between the public and the staff that obstructs normal face-to-face communication. This can include:
 - Glass or acrylic screens, like those often found at bank counters, hospital reception desks, or court registries.
 - Security partitions or ticket windows.
 - Any fixed separation that makes it difficult to hear clearly without amplification.

2) If a hearing augmentation system required by (1) is-

- An induction loop, it must be provided to not less than 80% of the floor area of the room or space serviced by the inbuilt amplification system (not typically used within DoE schools); or
- A system requiring the use of receivers or the like, it must be available to not less than 95% of the floor area of the room or space served by the inbuilt amplification system, and the number of receivers must not be less than –
 - If the room or space accommodates up to 500 persons, 1 receiver for every 25 persons or part thereof, or 2 receivers, whichever is the greater; and
 - If the room or space accommodates more than 500 persons but not more than 1000 persons, 20 receivers plus 1 receiver for every 33 persons or part thereof in excess of 500 persons; and
 - If the room or space accommodates more than 1000 persons but not more than 2000 persons, 35 receivers plus 1 receiver for every 50 persons or part thereof in excess of 1000 persons; and
 - If the room or space accommodates more than 2000 persons, 55 receivers plus 1 receiver for every 100 persons or part thereof in excess of 2000 persons.

3) The number of persons accommodated in the room or space served by an inbuilt amplification system must be calculated according to D2D18.

4) Any screen or scoreboard associated with a Class 9b building and capable of displaying public announcements

must be capable of supplementing any public address system, other than a public address system used for emergency warning purposes only.

Further, the Guide to Volume One of the NCC 2022 indicates:

D4D8 Hearing Augmentation

INTENT

To assist people with a hearing impairment (Deaf/Hard of hearing) to be made aware of communications associated with a building's use.

DoE commentary: By improving their ability to receive and understand audio information, in school buildings.

Further, in relation to access for people with disabilities, the Disability Discrimination Act 1992 has a standard which would apply to new DoE facilities. This is the Disability (Access to Premises – Buildings) Standards 2010 (Cth), and as latest amended version.

1.4 FUNCTIONAL CONSIDERATIONS

There are several functional considerations which will determine the final solution to be adopted, and the parameters set, to enable the solution to be fully operational.

Considerations include but not limited to:

- Select to suit age of users, current Government contracts of issued hearing aids and their respective connectivity requirements. Example below;
 - **Primary schools and Early Childhood - Phonak,**
 - **Special Schools – Phonak,**
 - **Secondary Schools - Auracast enabled.**
- Design, supply, installation, commissioning and hand over/training shall comply with the respective codes and standards and provide a fully functional system to suit the requirements of the codes and standards, and the end user.
- Type/manufacturer of systems.
- Functionality of the space.
- Identify how the space is intended to be used; teaching, presentations, group work, etc., to determine system coverage and performance requirements.
- Type of room and configuration of room.
- Consider room volume, ceiling height, surface finishes, and layout (e.g. traditional classroom, open-plan, or multipurpose space), as they affect sound propagation and equipment placement.
- Location of room main entry door and/or exit points.
- Position equipment and cabling to avoid interference with circulation paths and emergency egress requirements.
- Equipment mounting and connectivity strategy.
- Locate transmitters, receivers, and associated infrastructure to minimise disruption to teaching activities and ensure discrete, reliable access for the Deaf and Hard of hearing.
- Minimising obtrusive visibility and impact.
- Integrate components seamlessly into the room's design to avoid drawing unnecessary attention to assistive technologies, helping students feel included and comfortable.
- Consideration for equitable participation.
- Ensuring any assistive technology is integrated in a manner that does not isolate or draw unnecessary attention, supporting their full participation in class without discomfort or differentiation.

- Building fabric limitations.
- Account for any restrictions related to existing walls, ceilings, joinery, or heritage elements which may affect cabling, speaker installation or signal coverage.
- Compatibility with teaching technology.
- Verify the Hearing Augmentation system interfaces effectively with existing AV systems, such as projectors, interactive panels, IFPs, Interactive whiteboards, LCDs, TVs, microphones, amplification systems, and the like.
- System coverage and performance.
- Ensure signal coverage is consistent across the listening area and meets hearing augmentation standards, particularly in areas designated as primary listening zones.
- Power and access requirements.
- Confirm availability of suitable power, data, and service access points for system hardware (e.g. Speakers, receivers, transmitters, devices, etc).
- Maintenance and support.
- Design for easy servicing and future upgrades. Equipment should be accessible to technicians but secure from tampering or misuse.
- User training and awareness.
- Ensure school staff are familiar with system use and can confidently support the student without needing specialist assistance.
- AS/NZS 2107 – Acoustics, recommended design sound levels and reverberation times for building interiors.

1.5 INSTALLATION

- Engage a specialised installation team, qualified and accredited AV contractor with experience in hearing augmentation systems. The installer must follow manufacturer guidelines and apply best practices to ensure quality workmanship, signal clarity, and long-term system reliability. This also helps reduce the likelihood of faults and ensures the system performs consistently under varied classroom conditions.
- Phonak Multimedia Hub/Auracast Hub - Front of room offset to one side, furthest away from door entry, between 1000mm & 1100 AFFL, flush with front of any cabinetry or teaching wall joinery.
- Braille signs – Outside and within room beside entry door (refer NCC, & AS 1428.1).
- Power supplies shall be located directly beside equipment and within the enclosure, this helps ensure constant charge is provided and removes the risk of accidental disconnection.
- Audio connection shall also be located directly beside equipment and within common enclosure housing both equipment and connections.
- Prior to any works, coordinate onsite with TV/IFP/LCD/Projector/equipment types to ensure functionality of the devices support Audio out signal and at the same time speaker sound. Where it cannot operate simultaneously provide additional devices as required.
- All equipment/devices and the like shall be installed to manufacturer's specifications and standards.
- All mounts, fixings and the like shall be rated for the weight of the equipment/device plus an additional weight of 25%.
- The brackets shall be secured to building fabric and structure so they cannot be easily dislodged without authorisation.
- Provide additional structural support as required within the walls and ceilings to provide fixing integrity/stability of the equipment.
- Provide additional structural support as required within the walls and ceilings to provide fixing integrity/stability of the equipment.
- Provide a robust, purpose-built polycarbonate or acrylic enclosure with rounded edges and no sharp corners, lockable and tamper-resistant, ensuring safety, durability and suitability for a school environment.

- All equipment and associated power leads shall be tested and tagged by a licensed electrical equipment tester as per AS/NZS3760:2022.
- All cabling shall be neat and secure, concealed from view and with no joints or J-boxes between pieces of equipment.
- Appropriate cable lengths shall be provided to ensure no stress on cables or connectors.
- Provide conduits for cable paths providing future flexibility.
- All cabling shall be appropriately labelled within 25mm of the connector with a permanent Brother printer style labelling system.

1.6 TESTING, COMMISSIONING & TRAINING

Specialist Testing and Commissioning:

- Hearing augmentation systems shall be fully tested, configured, and commissioned by a suitably qualified and experienced Hearing Augmentation specialist. All works shall be carried out in accordance with the system manufacturer's requirements and to the satisfaction of both the superintendent and the Department of Education.

Certification and Compliance Documentation:

- A completed and signed Form 12 – Inspection Certificate and Form 16 – Certification by Competent Person shall be submitted to the Department of Education prior to practical completion. These forms must be issued by the specialist contractor responsible for installation, commissioning and hand over.

Commissioning Report:

- A detailed commissioning report shall be prepared and signed by the specialist, confirming all performance tests, equipment functionality, and interface checks (e.g. with AV or public address systems). This report is to be submitted to the superintendent prior to practical completion.

Manufacturer and Supplier Certification:

- All relevant test certificates and statements of compliance shall be provided by the equipment Manufacturer, Distributor or Supplier. These documents must confirm that the installed system is operating in accordance with the specified performance requirements and that all components have been configured and calibrated appropriately. These certifications shall be included in the final Operational and Maintenance Manuals.

School Staff Training:

- Post commissioning and prior to practical completion, provide comprehensive training for school staff and the nominated Department representative to ensure full understanding and confident operation of all hearing augmentation systems.”

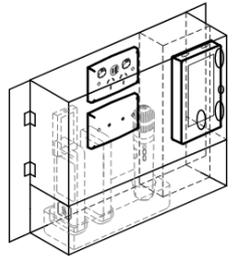
Post-Completion Testing and Maintenance:

- Provide a 6-monthly inspection, testing and preventative maintenance during the Defects Liability Period. This visit must include functional testing, cleaning of components, verification of connectivity, and a signed maintenance report confirming continued performance of the system. At this time additional training for school staff shall be undertaken where requested.

SECTION 2 - RECOMMENDATIONS

2.1 MINIMUM HEARING AUGMENTATION SYSTEM for PRIMARY SCHOOLS & EARLY CHILDHOOD CENTRES

The below system forms the **minimum** standard for Hearing Augmentation to General Teaching Areas and learning environments throughout DoE **Primary School** and **Early Childhood** facilities.

HEARING AUGMENTATION EQUIPMENT	EXAMPLE IMAGE
<p>Hearing augmentation audio connection wall plate complete with 2 x 3.5mm audio female outputs located adjacent Switch Socket Outlet (SSO) and beside Phonak Roger Multimedia Hub, all within the confines of the enclosure.</p>	
<p>Phonak Roger Multimedia Hub (PRMH) located within a heavy-duty enclosure complete with power supply/SSO/USB within the confines of the enclosure.</p>	
<p>Heavy duty Polycarbonate enclosure to house Phonak equipment, Audio Wall Plate and SSO/USB. Enclosure to come complete with CL001 key lockable piano hinged robust access door, and 2 x precision cut/openings for finger activation of Multimedia Hub pairing and reset controls. Locate enclosure at 1000mm AFFL to centre. Note: Depending on room joinery layouts, enclosure shall be mounted flush to the front within joinery to house equipment. <i>Future proof the size of enclosure to suit multiple transmitters due to technology changes and students within the same space utilising different technologies, e.g. Phonak, Signia, Resound, Bluetooth, Auracast, etc. Estimated size: 200mmH x 350mmL x 100mmD.</i></p>	
<p>Braille signs located at entrance door external and internal to room as per the accessibility signage guide and section D4 of the NCC. Depending on type of system, e.g. Phonak, Auracast, etc, text on signs shall be provided to suit. Heavy duty and securely fixed.</p>	
<p>2 x Phonak Roger NeckLoops V2 receivers, (for persons with "T-switch" on hearing aid) (t-switch receiver or headphones). Provide a minimum 2 per project to be handed to school and held at the Main Office.</p>	
POWER REQUIREMENTS	EXAMPLE IMAGE
<p>230V AC Double Switched Socket Outlets complete with dual USB charger integrated Type A & C, locate adjacent Phonak Roger Multimedia Hub.</p>	
CABLING & ACCESSORIES	
<p>Optical/3.5mm stereo audio cabling between projector/display screen/amplified sound system or the like, and hearing augmentation audio connection wall plate. Provide 3.5mm stereo splitters, digital to analogue converters and other equipment as required for a fully connected and operating system.</p>	
<p>3.5mm stereo fly lead (male/male) between Hearing Augmentation audio connection wall plate and Phonak Multimedia Hub. Provide additional cabling as required.</p>	
<p>Note: All cabling shall be run and terminated by a specialist AV contractor. Cabling shall be continuous between terminations, with no joints permitted except at faceplates or equipment connectors.</p>	

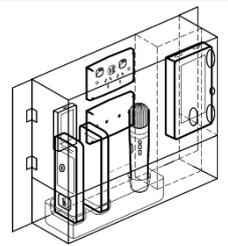
2.2 MINIMUM HEARING AUGMENTATION SYSTEM for HALLS (PRIMARY SCHOOL)

The below system forms the **minimum** standard for Hearing Augmentation to **Sports Halls, Multi-Purpose Halls** and the like throughout DoE facilities.

HEARING AUGMENTATION EQUIPMENT	EXAMPLE IMAGE
<p>Phonak Roger Base Station\Transmitter located within building communications rack adjacent Audio visual/Public Address headend equipment complete with power supply/SSO within the rack. Allow spare rack space to accommodate multiple transmitters, enabling flexibility for future technology changes and for students using different assistive listening systems such as Phonak, Signia, Resound, Bluetooth, and Auracast.</p>	
<p>Braille signs located at entrance door external and internal to room as per the accessibility signage guide and section D4 of the NCC. Depending on type of system, e.g. Phonak, Auracast, etc, text on signs shall be provided to suit. Heavy duty and securely fixed.</p>	
<p>2 x Phonak Roger NeckLoops V2 receivers, (for persons with "t-switch" on hearing aid) (t-switch receiver or headphones). Provide a minimum 2 per project to be handed to school and held at reception.</p>	
<p>Phonak Roger WallPilot located beside all main entry doors at 1200mm AFFL and within 200mm away from Door frame. Located on wall mounted within heavy duty enclosure c/w SSO and Audio connection.</p>	
<p>Optional Phonak Roger Repeater located on wall mounted within heavy duty enclosure c/w SSO and Audio connection. (only required to extend signal in larger spaces)</p>	
POWER REQUIREMENTS	
<p>230V AC Switched socket outlets adjacent Phonak Roger Base Station, WallPilot and Repeater.</p>	
CABLING & ACCESSORIES	
<p>Either XLR/RCA 3.5mm stereo audio cabling between AV/PA system and Hearing augmentation Base Station. Provide stereo splitters, digital to analogue converters and other equipment as required for a fully connected and operating system.</p>	
<p>Provide additional cabling as required.</p>	
<p>Note: All cabling shall be run and terminated by a specialist AV contractor. Cabling shall be continuous between terminations, with no joints permitted except at faceplates or equipment connectors.</p>	

2.3 MINIMUM HEARING AUGMENTATION SYSTEM for SPECIAL SCHOOLS

The below system forms the **minimum** standard for Hearing Augmentation to General Teaching Areas and learning environments throughout DoE **Special School** facilities.

HEARING AUGMENTATION EQUIPMENT	EXAMPLE IMAGE
Hearing augmentation audio connection wall plate complete with 2 x 3.5mm audio female outputs located adjacent Switch Socket Outlet (SSO) and beside Phonak Multimedia Hub, all within the confines of the enclosure.	
Phonak Roger Multimedia Hub (PRMH) located within a heavy-duty enclosure complete with power supply/SSO/USB within the confines of the enclosure.	
<p>Heavy duty polycarbonate enclosure to house Phonak, Soundfield equipment, pass around, Touchscreen, Audio Wall Plate and SSO/USB. Enclosure to come complete with CL001 key lockable piano hinged robust access door, and 3 x precision cut/openings for finger activation of Multimedia Hub pairing and reset controls. Locate enclosure at 1000mm AFFL to centre.</p> <p>Note: Depending on room joinery layouts, enclosure shall be mounted flush to the front within joinery to house equipment.</p> <p><i>Future proof the size of enclosure to suit multiple transmitters due to technology changes and students within the same space utilising different technologies, e.g. Phonak, Signia, Resound, Bluetooth, Auracast, etc. Estimated size: 200mmH x 350mmL x 100mmD.</i></p>	
Braille signs located at entrance door external and internal to room as per the accessibility signage guide and section D4 of the NCC. Depending on type of system, e.g. Phonak, Auracast, etc, text on signs shall be provided to suit. Heavy duty and securely fixed.	
2 x Phonak Roger NeckLoops V2 receivers, (for persons with "t-switch" on hearing aid) (t-switch receiver or headphones). Provide a minimum 2 per project to be handed to school and held at reception.	
Phonak Roger DigiMaster 5000/V2 or 7000/V2 SoundField system/speaker on wall mount located adjacent teaching whiteboard/IFP, speaker shall be facing students. Select type to suit room size.	
Phonak Roger WallPilot located beside entry door at 1200mm AFFL and within 200mm away from door frame.	
Phonak Roger Pass-around Microphone (shown left image), and Phonak Roger Touchscreen Mic 3 (shown middle image), and Phonak Charging Rack. (shown right image)	
POWER REQUIREMENTS	EXAMPLE IMAGE
230V AC Double Switched Socket Outlets complete with dual USB charger integrated Type A & C, locate adjacent Phonak Roger Multimedia Hub.	
CABLING & ACCESSORIES	
Optical/3.5mm stereo audio cabling between projector/display screen/amplified sound system or the like and Hearing augmentation audio connection wall plate. Provide 3.5mm stereo splitters, digital to analogue converters and other equipment as required for a fully connected and operating system.	
3.5mm stereo fly lead (male/male) between Hearing Augmentation audio connection wall plate and Phonak Multimedia Hub. Provide additional cabling as required.	
Note: All cabling shall be run and terminated by a specialist AV contractor. Cabling shall be continuous between terminations, with no joints permitted except at faceplates or equipment connectors.	

2.4 MINIMUM HEARING AUGMENTATION SYSTEM for SECONDARY SCHOOLS

The below system forms the **minimum** standard for Hearing Augmentation to General Teaching Areas and learning environments throughout DoE **Secondary School** facilities.

GENERAL PERFORMANCE REQUIREMENTS

An Auracast Transmitter Hub (TH) shall be installed to enable low-latency, high-quality wireless audio broadcasting within a teaching space. The system shall operate in accordance with the Bluetooth LE Audio (Auracast™) standard and shall be suitable for use in education environments requiring assistive listening or broadcast reinforcement.

The transmitter shall provide configurable broadcast power control, allowing the system to limit the range of transmission to the confines of the teaching space as much as practicable. This is to prevent signal bleed into adjacent rooms or unintended areas. Signal bleed shall be limited to the adjacent space at worst case.

The transmitter shall support individual broadcast encryption, enabling secure and private audio streams for targeted applications (e.g. private learning support, confidential assessments). Encryption protocols shall comply with Auracast standards for protected transmission, ensuring only authorised receivers can access the broadcast content.

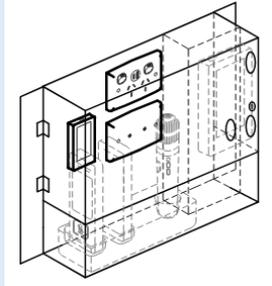
The system shall provide a real-time audio stream from AV sources (e.g. teacher microphone, laptop, Projector, TV, interactive panel) to be broadcast via Auracast protocol.

The transmitter shall support multiple concurrent users, allowing students to connect using their personal devices (e.g. mobile phone).

Audio latency must be suitable for voice-based learning environments, with maximum end-to-end delay not exceeding 50ms.

System shall support the student device requirements and to receive broadcast audio, students shall use:

- A compatible mobile device (smartphone or tablet) supporting Bluetooth LE Audio (Auracast)
- A receiver app or other compliant Auracast application, installed on their device (available via Apple App Store or Google Play, etc)
- Compatible headphones, hearing aids, or earbuds capable of receiving Auracast audio streams (either natively or via the app)

HEARING AUGMENTATION EQUIPMENT	EXAMPLE IMAGE
<p>Hearing augmentation audio connection wall plate complete with 2 x 3.5mm audio female outputs located adjacent Switch Socket Outlet (SSO) and beside Auracast Transmitter, all within the confines of the enclosure.</p>	
<p>Auracast Transmitter located within a heavy-duty enclosure complete with power supply/SSO/USB within the confines of the enclosure. Multiple image examples shown for reference only.</p> <p>Link below for referencing additional Auracast devices. (Provided for information only) https://www.bluetooth.com/auracast/find-a-product/</p>	
<p>Heavy duty polycarbonate enclosure to house Hearing Augmentation equipment, Audio Wall Plate and SSO/USB. Enclosure to come complete with CL001 key lockable piano hinged robust access door, and 3 x precision cut/openings for finger activation of Multimedia Hub pairing and reset controls. Locate enclosure at 1000mm AFFL to centre.</p> <p>Note: Depending on room joinery layouts, enclosure shall be mounted flush to the front within joinery to house equipment.</p> <p><i>Future proof the size of enclosure to suit multiple transmitters due to technology changes and students within the same space utilising different technologies, e.g. Phonak, Signia, Resound, Bluetooth, Auracast, etc. Estimated size: 200mmH x 350mmL x 100mmD.</i></p>	
<p>Braille signs located at entrance door external and internal to room as per the accessibility signage guide and section D4 of the NCC. Depending on type of system, e.g. Phonak, Auracast, etc, text on signs shall be provided to suit. Heavy duty and securely fixed.</p>	
<p>2 x Auracast receivers to be handed to school. Provide quantity to comply with the NCC, but with a maximum of 6 receivers per school to be held at reception. Provide 1 x Docking station for charging at reception.</p>	
<p>2 x Neckloops (for persons with "t-switch" on hearing aid) (t-switch receiver) and 2 x headphones, Quantity shall match receiver quantity provided to school.</p>	
POWER REQUIREMENTS	EXAMPLE IMAGE
<p>230V AC Double Switched Socket Outlets complete with dual USB charger integrated Type A & C, locate adjacent Auracast Transmitter Hub.</p>	
CABLING & ACCESSORIES	EXAMPLE IMAGE
<p>Optical/3.5mm stereo audio cabling between projector/display screen or the like and hearing augmentation audio connection wall plate. Provide 3.5mm stereo splitters, digital to analogue converters and other equipment as required for a fully connected and operating system.</p>	
<p>3.5mm stereo fly lead (male/phoenix termination block) between hearing augmentation audio connection wall plate and Auracast Transmitter Hub. Provide additional cabling as required.</p>	
<p>Note: All cabling shall be run and terminated by a specialist AV contractor. Cabling shall be continuous between terminations, with no joints permitted except at faceplates or equipment connectors.</p>	

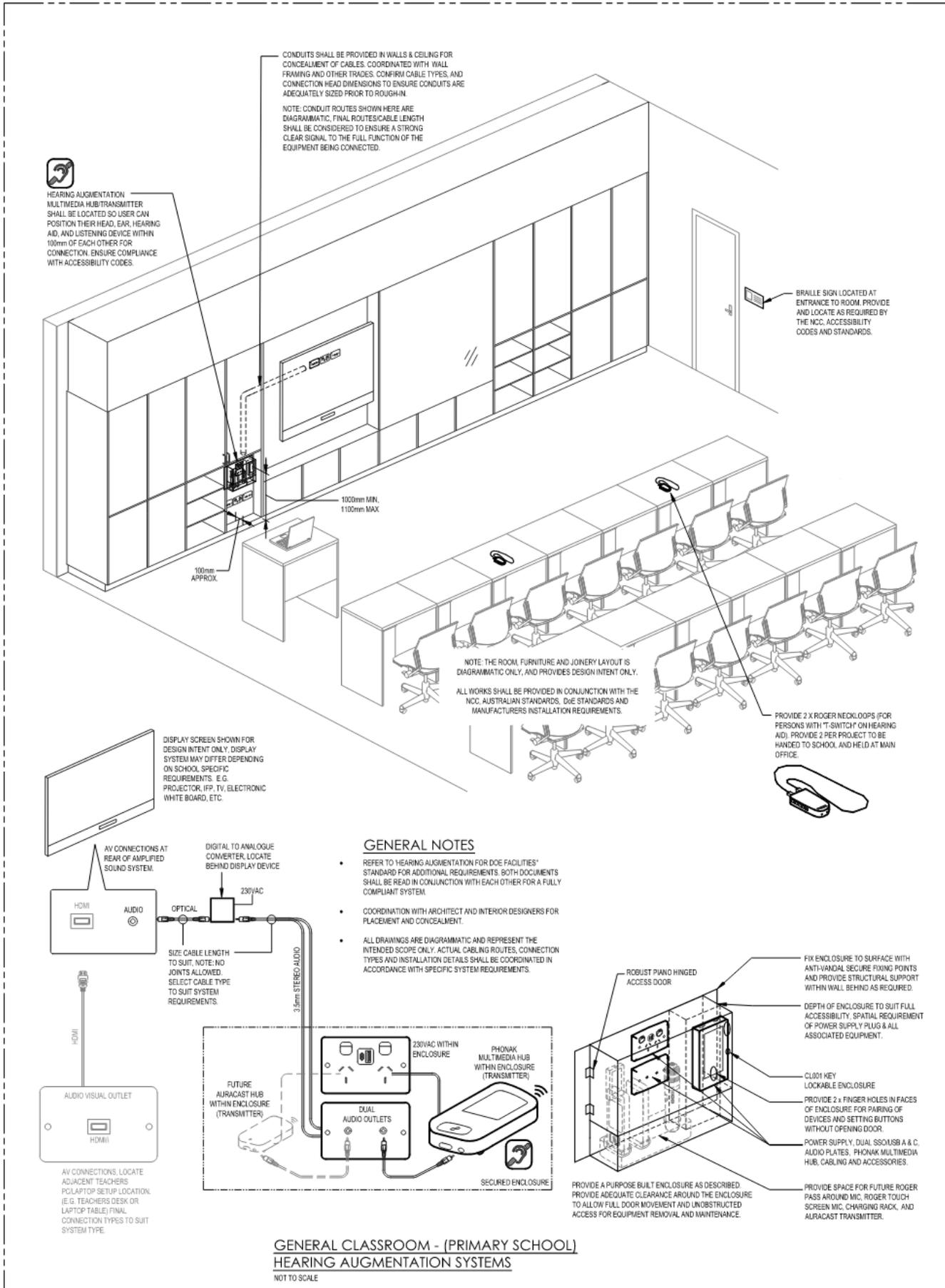
2.5 MINIMUM HEARING AUGMENTATION SYSTEM for HALLS (SECONDARY SCHOOL)

The below system forms the **minimum** standard for Hearing Augmentation to **Sports Halls, Multi-Purpose Halls** and the like throughout DoE facilities.

HEARING AUGMENTATION EQUIPMENT	EXAMPLE IMAGE
<p>Auracast Transmitter Hub AMP-AURI-TX2N (ATH) + USB-C Power supply unit AMP-Z-LA-425-09, shall be located within building communications rack adjacent audio visual/Public Address headend equipment complete with Switched Socket Outlet within the rack. Allow spare rack space to accommodate multiple transmitters, enabling flexibility for future technology changes and for students using different assistive listening systems such as Phonak, Signia, Resound, Bluetooth, and Auracast.</p>	
<p>Braille signs located at entrance doors external and internal to room, as per the accessibility signage guide and section D4 of the NCC. Depending on type of system, e.g. Phonak, Auracast, etc, text on signs shall be provided to suit. Heavy duty and securely fixed.</p>	
<p>2 x Neckloops LIS-LA-438 (for persons with "t-switch" on hearing aid) (t-switch receiver) and 2 x Headphones, Quantity shall match receiver quantity provided to school.</p>	
<p>2 x Auracast receivers AMP-AURI-RX1 to be handed to school. Provide quantity to comply with the NCC, but with a maximum of 6 receivers per school to be held at reception. Provide 1 x Docking station AMP-AURI-D4 for charging at reception.</p>	
POWER REQUIREMENTS	
<p>230V AC Switched socket outlets adjacent Auracast Transmitter, WallPilot, etc.</p>	
CABLING & ACCESSORIES	
<p>Either XLR/RCA 3.5mm stereo audio cabling between AV/PA system and hearing augmentation Auracast Transmitter. Provide stereo splitters, digital to analogue converters and other equipment as required for a fully connected and operating system.</p>	
<p>Provide additional cabling as required.</p>	
<p>Note: All cabling shall be run and terminated by a specialist AV contractor. Cabling shall be continuous between terminations, with no joints permitted except at faceplates or equipment connectors.</p>	

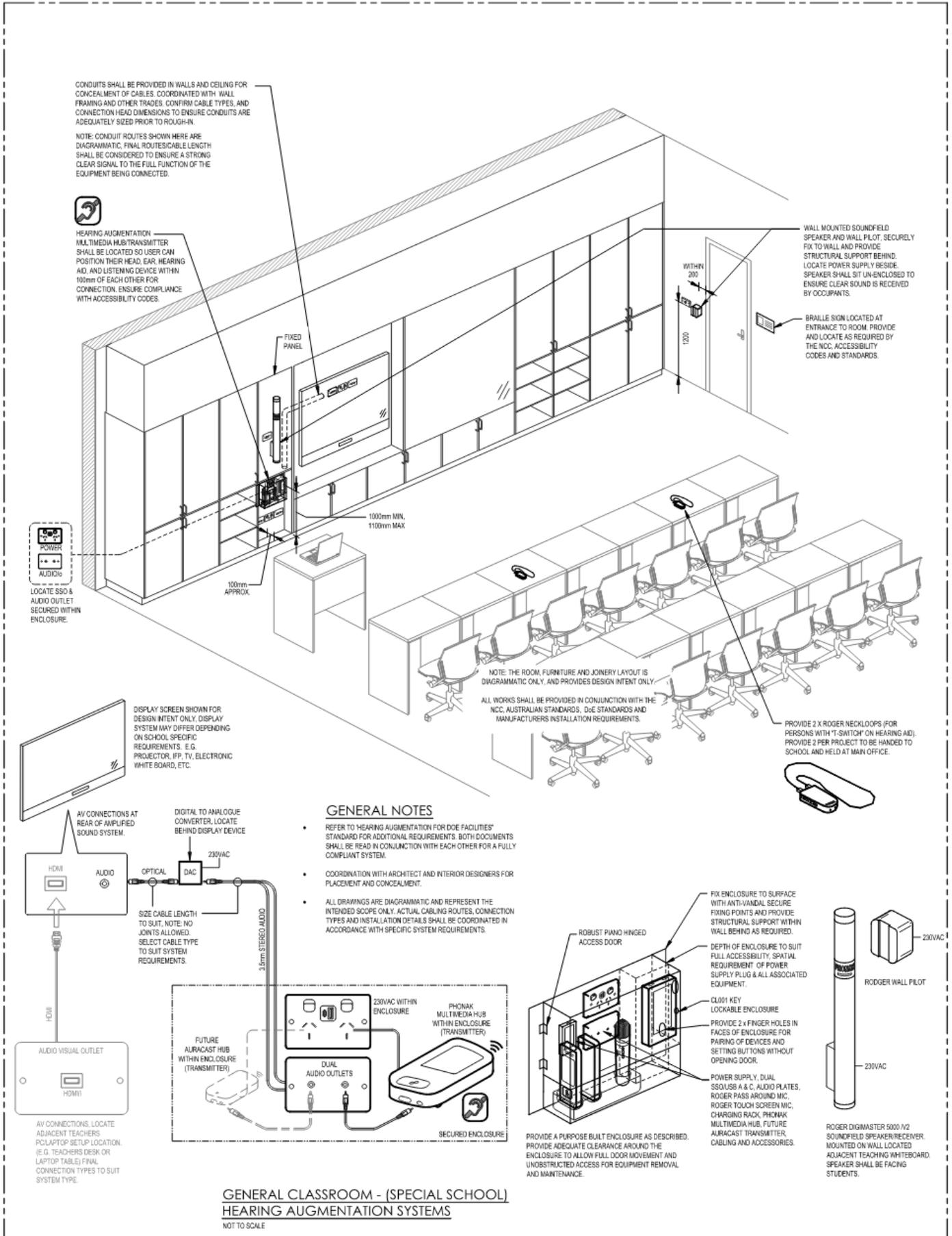
3.0 HEARING AUGMENTATION DETAIL for PRIMARY SCHOOLS & EARLY CHILDHOOD CENTRES

The below detail forms the **minimum** standard for Hearing Augmentation to General Teaching Areas and learning environments throughout DoE **Primary School** and **Early Childhood** facilities.



3.1 HEARING AUGMENTATION DETAIL for SPECIAL SCHOOLS

The below detail forms the **minimum** standard for Hearing Augmentation to General Teaching Areas and learning environments throughout DoE **Special School** facilities.



3.2 HEARING AUGMENTATION DETAIL for SECONDARY SCHOOL

The below detail forms the **minimum** standard for Hearing Augmentation to General Teaching Areas and learning environments throughout DoE **Secondary School** facilities.

