



Residential Development

Acoustical Assessment

47 to 49 Percy Street
Bankstown NSW 2200

Prepared for:-

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TQM Design & Construct Pty. Ltd. commissioned Harwood Acoustics Pty. Ltd. to undertake an Acoustical Assessment for proposed amendments to an approved residential development at 47 to 49 Percy Street, Bankstown, NSW.

Accordingly, Harwood Acoustics Pty Ltd has prepared this report for the exclusive use of the Client identified on the title page. The report is prepared in accordance with the brief and scope of works agreed between the Client and Harwood Acoustics Pty Ltd and may not be suitable for use beyond that scope.

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1. INTRODUCTION AND SUMMARY

TQM Design & Construct Pty. Ltd. commissioned Harwood Acoustics Pty. Ltd. to undertake an Acoustical Assessment for proposed amendments to an approved residential development at 47 to 49 Percy Street, Bankstown, NSW (the Site).

The Site is located on the western side of Percy Street on land zoned High Density Residential under Canterbury-Bankstown Local Environment Plan 2023 (LEP). The Site is bound to the north, west and south by residential premises and there are residences across Percy Street to the east. A location plan is shown in Figure 1.

Canterbury Bankstown Council approved a six (6) storey residential flat building on the Site comprising 60 units over basement car parkin (DA-74/2017).

It is proposed to seek approval for a modification to the approved development. Example floor plans are shown in Figures 2 and 3 and full details can be seen in Design Workshop Australia's architectural drawings for Project 1705 dated April 2026.

This acoustical assessment addresses the following acoustical matters:-

- The potential for noise impacts on existing residential receptors from the operation of the mechanical plant servicing the building,
- advice relating to compliance with the acoustical provisions of Part F7 of the Building Code of Australia 2022 (BCA),

Noise design goals for the mechanical plant servicing the building were derived from the NSW Environment Protection Authority's (EPA) *Noise Guide for Local Government* 2023 based on background noise levels measured in the vicinity of the neighbouring receptors.

Noise design goals for mechanical plant are 51 dBA ($L_{eq, 15 \text{ minute}}$) during the day time period, 45 dBA ($L_{eq, 15 \text{ minute}}$) during the evening time, and 43 dBA ($L_{eq, 15 \text{ minute}}$) during the night time period.

Mechanical plant servicing the building will include ventilation fans for the building and car park as well as individual air conditioning condenser units for each apartment. However, the selection of mechanical plant has not been finalised at this stage.

A final assessment of mechanical plant noise emission will be undertaken at the Construction Certificate stage of the proposal, once the selection of all plant and equipment to service the building has been finalised. Any noise controls, if required, will not be onerous and may include, as an example, acoustical lining of duct work or installation of silencers for the car park ventilation fans and the selection of low noise condensers for air conditioning units. The noise goals established in Section 3 of this Report will be able to be met for this proposal as detailed in Section 4 of this Report. This is providing a further assessment of mechanical plant noise emission is carried out prior to the issue of a construction certificate once mechanical plant selections are finalised.

Recommendations are made in Section 5 of this report to address the BCA *Deemed-to-Satisfy Provisions* and / or *Performance Requirements* of Part F7 for the construction of internal building elements.

2. SITE AND DEVELOPMENT DESCRIPTION

2.1 Site Description

The Site is located on the western side of Percy Street on land zoned High Density Residential under Canterbury-Bankstown Local Environment Plan 2023 (LEP). The Site is bound to the north, west and south by residential premises and there are residences across Percy Street to the east.

The nearest receptors to the Site are shown in Figure 1 below and their addresses are as follows:-

R1 – 45 Percy Street

R2 – 51 Percy Street

R3 – 38 to 44 Leonard Street

R4 – 50 to 54 Percy Street



Figure 1. Location Plan – 47 to 49 Percy Street, Bankstown, NSW

(source: Metromap.com.au ©)

Receptors

The receptors shown in Figure represent the closest receptors bounding the site to the north, west, south and across Percy Street to the east including those beyond.

2.2 Development Description

The development will comprise sixty (60) residential units over six levels above two levels of basement car parking. The main differences between the approved development and the current proposal are changes to the layout of some of the units.

Example floor plans are shown in Figures 2 and 3 and full details can be seen in Design Workshop Australia's architectural drawings for Project 1705 dated April 2026.



Figure 2. Ground Floor Plan

(source: Design Workshop Australia's architectural drawing 012 for Project 1705 dated April 2026.)



Figure 3. Levels 1 to 3

(source: Design Workshop Australia's architectural drawing 013 for Project 1705 dated April 2026.)



Figure 3. Levels 4 & 5

(source: Design Workshop Australia's architectural drawing 014 for Project 1705 dated April 2026.)

3. NOISE CRITERIA

This Section sets out the noise guidelines and policies applicable to this development.

3.1 NSW EPA's Noise Guide for Local Government

The Environment Protection Authority (EPA) published the *Noise Guide for Local Government* in June 2023 (the Guide). The Guide replaced the former 2013 version in January 2023 and provides practical guidance to council officers on day-to-day management of common neighbourhood noise problems. The Guide focuses on the regulation, assessment and management of neighbourhood noise issues, which generally are managed by councils. The Guide is not a statutory document but may help councils determine how to respond to noise issues in their area.

Part 2 of the Guide provides an overview of the legal framework for noise control in NSW and includes advice in relation to the assessment and management of a variety of specific noise sources and noise related issues that Council may encounter. These include, for example, agricultural noise, music venues, outdoor entertainment activities, air conditioners, heat pump hot water heaters and pool / spa pumps, shooting ranges, etc.

It is generally accepted that a noise source is generally considered to be intrusive if the noise from the source when measured over a 15-minute period ($L_{eq, 15 \text{ minute}}$), exceeds the background noise ($L_{90, 15 \text{ minute}}$) by more than 5 dB.

This criterion is derived from and are in keeping with the EPA's *Noise Policy for Industry* 2017 and the policy is also used to establish noise goals for commercial receptors in vicinity of the Site as well as the preschool as detailed in Section 3.3.

3.2 Measured Background Noise Levels

In order to establish the noise goals, it is necessary to determine the background noise levels in the vicinity of all potentially affected residential Receptors.

The background noise level is defined by the EPA as 'the underlying level of noise present in ambient noise when all unusual extraneous noise is removed' and is considered to be represented by the $L_{A90, 15 \text{ minute}}$ descriptor. This is a statistical measure of the sound pressure level that is exceeded for 90 % of the time.

The Rating Background Level is the single-figure background noise level derived from monitoring $L_{A90, 15 \text{ minutes}}$ over a representative period of time. The Rating Background Level is established for the day, evening and night time periods and is used for assessment purposes.

In this instance a noise logger was temporarily installed at 25 Percy Street to measure background noise levels between Saturday 18 and Friday 24 October 2025.

Results of the noise survey are summarised in Table 2 below. Instrumentation used during the noise survey is provided in Appendix A.

Table 2 Rating Background Noise Levels – Percy Street, Bankstown

Period / Time of Day	Rating Background Level dBA ($L_{90, 15 \text{ minute}}$)	Existing Ambient Noise Levels dBA ($L_{eq, 15 \text{ minute}}$)
Day Time Period (7 am to 6 pm)	46	59
Evening Time Period (6 pm to 10 pm)	41	54
Night Time Period (10 pm to 7 am)	38	55

3.3 Project Specific Noise Goals

When all the above factors are considered, project specific noise goals are shown in Table 3 below: -

Table 3 Noise Design Goals for All Receptors

Receptor / Description	Assessment Criteria dBA		
	L _{eq} , 15 minute		
	Day Time (7 am to 6 pm)	Evening Time (6 pm to 10 pm)	Night Time (10 pm to 7 am)
Mechanical Plant Noise			
All residential receptors	51	56	43

4. MECHANICAL PLANT NOISE

The selection of mechanical plant has not been finalised at this stage, however it is likely to include car park and building ventilation fans as well as air conditioning units for each apartment.

A final assessment of mechanical plant noise emission will be undertaken at the Construction Certificate stage of the proposal, once the selection of all plant and equipment to service the building has been finalised.

Any noise controls, if required, will not be onerous and may include, as an example, acoustical lining of duct work or installation of silencers for the car park ventilation fans and the selection of low noise condensers for air conditioning units. The noise goals established in Section 3.3 of this Report will be able to be met for this proposal.

5. BCA ACOUSTICAL ASSESSMENT

5.1 Building Code of Australia (BCA)

The information in this section is extracted from the Building Code of Australia (BCA), which is now part of the National Construction Code (NCC), *Part F7 Sound Transmission and Insulation*. The acoustical requirements and the building solutions in this report are based on the Deemed-to-Satisfy Provisions of the BCA.

The residential units in the proposed development are classified as a Class 2 building.

The *Objective* of this Part is to safeguard occupants from illness or loss of amenity as a result of undue sound being transmitted:-

- (a) between adjoining *sole-occupancy units*; and
- (b) from common spaces to *sole-occupancy units*; and
- (c) from parts of different classifications to sole-occupancy units.

The Objective only applies to a Class 2 or 3 building or a Class 9c *aged care building*.

Floors

F7D5 BCA Sound insulation rating of floors

A floor in a Class 2 building must have an $R_w + C_{tr}$ (airborne) not less than 50 and an $L_{n,w}$ (impact) not more than 62 if it separates-

- (i) *sole-occupancy units*; or

- (ii) a *sole-occupancy unit* from a plant room, lift *shaft*, stairway, *public corridor*, public lobby or the like, or parts of a different classification.

BCA Walls

F7D6 Sound insulation rating of walls

1. A wall in a Class 2 building must -
 - a) have an $R_w + C_{tr}$ (airborne) not less than 50, if it separates *sole-occupancy units*; and
 - b) have an R_w (airborne) not less than 50, if it separates *sole-occupancy unit* from a plant room, lift *shaft*, stairway, *public corridor*, public lobby or the like, or parts of a different classification; and
 - c) be of discontinuous construction if it separates:
 - (A) a bathroom, *sanitary* compartment, laundry or kitchen in one *sole-occupancy unit* from a *habitable room* (other than a kitchen) in an adjoining unit; or
 - (B) a *sole-occupancy unit* from a plant room or lift *shaft*.
2. A door may be incorporated in a wall in a Class 2 building that separates a *sole-occupancy unit* from a stairway, *public corridor*, public lobby or the like, provided the door assembly has an R_w not less than 30.
5. Where a wall *required* to have sound insulation has a floor above, the wall must continue to -
 - a) the underside of the floor above; or
 - b) a ceiling that provides the sound insulation *required* for the wall.
6. Where a wall required to have sound insulation has a roof above, the wall must continue to -
 - a) the underside of the roof above; or
 - b) a ceiling that provides the sound insulation required for the wall.

Services

F7D7 Sound insulation rating of services

1. If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one *sole-occupancy unit*, the duct or pipe must be separated from the rooms of any *sole-occupancy unit* by construction with an $R_w + C_{tr}$ (airborne) not less than-
 - a) 40 if the adjacent room is a *habitable room* (other than a kitchen); or
 - b) 25 if the adjacent room is a kitchen or non-habitable room.
2. If a storm water pipe passes through a *sole-occupancy unit* it must be separated in accordance with (1)(a) and (b).

Pumps

F7D8 Sound isolation of pumps

A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.

5.2 AAAC Apartment and Townhouse Acoustic Rating Guide (2017)

The Building Code of Australia (BCA) regulates minimum acceptable construction standards for buildings and sets minimum standards for privacy. Many in the housing industry have interpreted these as absolute requirements, applicable to all types of dwellings.

The result has been that owners of luxury apartments built to BCA standards have sometimes become dissatisfied with the acoustic performances, which in their view are not commensurate with the price they have paid.

To fulfil a need identified by the community and the housing industry, member firms of the AAAC have prepared a 'star' rating system to rank the acoustical quality of apartments. The following Table 4 provides a rating for airborne sound insulation for walls, impact isolation of floors and internal building services.

Table 4 Summary of AAAC Ratings for Apartment Sound Insulation

Intertenancy Activities	2 Star	3 Star	4 Star	5 Star	6 Star
Airborne Sound Insulation of Walls and Floors					
Between Separate Tenancies $D_{nT,w} + C_{tr} \geq$	35	40	45	50	55
Between a Lobby / Corridor and Bedroom $D_{nT,w} + C_{tr} \geq$	30	40	40	45	50
Between a Lobby / Corridor and Living Area $D_{nT,w} + C_{tr} \geq$	25	40	40	40	45
Corridor, Foyer to Living Space Via Door(s) $D_{nT,w}$	20	25	30	35	40
Impact Isolation of Floors					
Between Tenancies $L_{n,w} \leq$	65	55	50	45	40
Between All Other Spaces and Tenancies $L_{n,w} \leq$	65	55	50	45	40
Impact Isolation of Walls					
Between Tenancies	No	Yes	Yes	Yes	Yes
Between Common Areas and Tenancies	No	No	No	Yes	Yes

The performance requirements of the BCA are in line with the 4 star rating for airborne sound transmission through walls and floors, however they are more in line with the 2 star rating for impact isolation of floors. That is because the BCA rating for impact isolation is set to a particularly low level. We recommend that all floors are designed to achieve a minimum impact sound rating ($L_{n,w}$) of 55. However, this report provides recommendations in the following sections to satisfy the requirements of the BCA. Additional advice may be given to

achieve the various Star ratings of the AAAC guideline if the architect or the builder wishes to provide a higher level of acoustical isolation.

5.3 Initial Construction Recommendations

The proposed construction methods and materials are not finalised for this proposal at this stage. The following recommendations are provided for consideration by the architect and a final design review will be undertaken prior to the issue of a Construction Certificate. Any advice provided in this Section is for the architect's consideration and should not be used for construction details by the builder.

5.3.1 Floors

The floors separating the occupancy will be of a minimum 200 mm thick concrete slab construction with standard plaster board ceilings below.

Carpet

- Carpet installed on top of slab as per manufacturer's instructions,
- Ceilings below these floors to architect's specifications.

Tiled Floors (Wet Areas)

Option 1

An acoustic underlay should be installed below timber, vinyl or tile flooring in all rooms*,

- Example underlay as follows:-
 - Regupol Sonus Core 5 (5 mm thick) supplied by Regupol Australia
<https://acoustics.regupol.com.au/products/range/regupol-sonus-core/regupol-sonus-core-5/>, or
 - 5 mm AcoustaMat supplied by A1 rubber
<https://a1rubber.com/our-products/acoustic-flooring/acoustamat/>, or
 - RF 700 5 mm supplied by Uniroll Australia
[Contact Uniroll direct on 02 9759 7066](#)
- Alternative products may be acceptable and should be checked prior to installation.
- Suspended plasterboard ceilings below these floors to architect's specifications.
- Acoustic underlay should be installed to manufacturer's specifications, care should be taken to ensure that the underlay returns up the wall (or flexible sealant is used) to ensure that there is no mechanical connection between the tile or timber and the wall or skirting (see Appendix C).

Option 2

- Tile or timber flooring installed on slab to builder's or manufacturer's specifications,
- Ceilings below these floors to comprise minimum one layer of minimum 13 mm thick standard plasterboard fixed to furring channel or hanging rods with isolation mounts,
 - Example Rondo STWC clip
<https://www.rondo.com.au/products/acoustic-assemblies>

These floor/ceiling constructions are designed to achieve an acoustic rating of $R_w + C_{tr}$ 50 (airborne) and $L_{n,w}$ (impact) of not more than 62 to meet the requirement of the BCA *Deemed-to-Satisfy Provisions* in Section F7D5 and are therefore acceptable.

Recommendations

Once the propriety product for floor impact isolation is selected, confirmation that the design will meet the required goal should be obtained in writing from the supplier. An on-site progress test is strongly recommended as flanking paths can limit the performance of the floor-ceiling system. The impact sound propagates vertically, horizontally and diagonally – hence, whilst not strictly required, consideration should be given to the impact treatment for terraces, balconies, corridors with hard surfaces where they are above habitable spaces.

Access panels required to be installed in the ceiling should be acoustically rated to achieve $R_w + C_{tr}$ 25 (see Section on access panels below).

Important Notes

- The impact isolation rating of floor applies to all floors in the apartments including tiles in bathrooms, ensuites, toilets and laundries, and not just living rooms or kitchens. Therefore either option 1 (acoustic underlay) or option 2 (resiliently mounted ceilings) applies to all floors, including tiled wet areas, and including the Level 1 apartments that are located above retail premises on the ground floor and level 2 apartments located above the gym and other tenancies.

5.3.2 Walls

Walls Separating Units

Internal party walls separating sole-occupancy units may be constructed as follows (the following are examples only and alternative construction methods may be acceptable):-

Option 1 - Hebel Wall System

- Minimum 75 mm thick autoclaved aerated concrete (Hebel Power panel) with one layer of 13 mm thick fire rated or sound rated plasterboard or 10 mm thick moisture resistant board directly fixed to outside face of the power panel,
- One row of minimum 64 mm steel studs spaced a minimum 20 mm from the power panel,
- One layer of 13 mm thick fire rated or sound rated plasterboard or 10 mm thick moisture resistant board fixed to the outside of the stud,
- Minimum 75 mm thick glasswool insulation (min density 11 kg/m³) in the cavity between the studs.

Option 2 – Hebel Wall System with Furring Channel

- Minimum 75 mm thick autoclaved aerated concrete (Hebel Power panel) with one layer of 13 mm thick fire rated or sound rated plasterboard or 10 mm thick moisture resistant board fixed to one side of the panel using 28 mm furring channel,
- 50 mm thick polyester insulation (min density 9 kg/m³) fixed between the furring channel and the plasterboard wall lining,
- One row of minimum 64 mm steel studs spaced a minimum 35 mm from the power panel,
- One layer of 13 mm thick fire rated or sound rated plasterboard or 10 mm thick moisture resistant board fixed to the outside of the stud,
- Minimum 105 mm thick glasswool insulation (min density 7 kg/m³) in the cavity between the studs.

Option 3 - Shaft liner construction (e.g. CSR System 1535)

- 13 mm thick sound rated plasterboard fixed to a minimum 64 mm steel stud,
- Minimum 20 mm air gap,
- One layer of 25 mm thick CSR shaft liner panel in *H Studs*
- Minimum 20 mm air gap,
- 13 mm thick sound rated plasterboard fixed to a minimum 64 mm steel stud,
- Minimum 75 mm thick glasswool insulation (min density 14 kg/m³) sound batts in both cavities in both cavities.

These wall systems are designed to achieve R_w 50 with **discontinuous construction**, where required, to meet the *Deemed-to-Satisfy Provisions* of section F7D6 of the BCA and are therefore acceptable.

Walls Separating Units from Corridors

Either of the wall options listed above will be suitable for the construction of walls separating sole occupancy units from corridors.

This wall system is designed to achieve R_w 50 and meets the *Deemed-to-Satisfy* provisions in Part F7D6 of the BCA and is therefore acceptable.

Walls Separating Occupancy Units from a Lift Shaft

The walls separating the *sole-occupancy units* from the lift shafts may be constructed using the following wall type:-

- **Minimum 200 mm thick in-situ concrete**, with:
 - One row of minimum 64 mm steel studs spaced a minimum 20 mm from the concrete panel,
 - One layer of 13 mm thick plasterboard fixed to the studs,
 - Minimum 75 mm thick glasswool insulation (min density 11 kg/m³) in the cavity.

This wall system is of discontinuous construction and is designed to achieve R_w 50 and meets the *Deemed-to-Satisfy* provisions in Part F7D6 of the BCA and is therefore acceptable.

5.3.3 Services**Construction Separating Services from Habitable Rooms**

In order to achieve the required acoustic rating of $R_w + C_{tr}$ 40, we recommend the following construction:-

- All services serving one sole occupancy unit passing through habitable rooms in another sole occupancy unit must be acoustically lagged,
 - E.g. Nuwrap 5 or Soundlagg 4525C or Acoustiflex PL4.5/15 pipe lagging
- All risers or bulkheads or ceiling cavities containing services should be constructed from one layer of minimum 10 mm thick plasterboard (or 6 mm thick fibre cement sheet).
- Bulkhead or ceiling cavity must also be lined internally with 75 mm thick glasswool or polyester insulation.

This construction will meet the *Deemed-to-Satisfy Provisions* in section F7D7 of the BCA to achieve an acoustic rating of $R_w + C_{tr}$ 40.

This recommendation should also be constructed to achieve an **R_w + C_{tr} 40** rating between the services located in the ceiling space of a Bathroom / Ensuite and the adjacent Bedroom in the same apartment.

This construction method is detailed in ADM Architects Pty. Ltd.'s architectural detail 10 in drawing A-406 for Project No. 2019-05 dated 28/02/2023.

Construction Separating Services from Bathrooms and Non-Habitable Rooms

In order to achieve the required acoustic rating of **R_w + C_{tr} 25**, we recommend either of the following options.

All services serving one sole occupancy unit passing through habitable rooms in another sole occupancy unit must be acoustically lagged;

- E.g. Nuwrap 5 **or** Soundlagg 4525C **or** Acoustiflex PL4.5/15 pipe lagging
- All risers or bulkheads or ceiling cavities containing services should be constructed from one layer of minimum 10 mm thick plasterboard (or 6 mm thick fibre cement sheet).

These constructions will meet the *Deemed-to-Satisfy Provisions* in section F7D7 to achieve an acoustic rating of **R_w + C_{tr} 25**.

Services Separation from Open Plan Kitchens

R_w + C_{tr} 25 construction is required to separate the following services from a Kitchen and **R_w + C_{tr} 40** construction is required to separate the services from the adjoining Living and Dining Room:

1. duct, soil, waste or water supply pipe, that is located in a wall or floor cavity and that serves or passes through more than one *sole-occupancy unit*.
2. storm water pipe that passes through a *sole-occupancy unit*.

However, we recommend that an **R_w + C_{tr} 40** rating construction be used to separate the services located in kitchen ceiling space or bulkhead if it adjoins a Living or Dining room in open plan apartments.

All acoustical lagging must provide complete coverage for the full extent of the pipe or duct.

Penetrations and Downlights in Services Systems

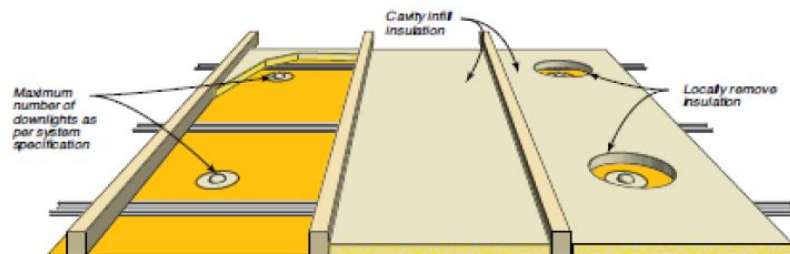
Penetrations in any services systems that are required to be acoustically rated may undermine the acoustical performance of the system.

For example, services systems such as ceilings or bulkheads may often incorporate downlights. The distribution of downlights in a services system (bulkhead or bathroom ceiling for example) should be kept to a minimum and be evenly distributed, no closer than 900 mm apart where practicable.

The recommended distribution of downlights in a services system will vary depending on the construction of the system (e.g. thickness of plasterboard lining), whether the services are lagged, whether there is insulation in the ceiling or bulk head and the required acoustical rating of the system.

Advice should be sought prior to construction in relation to downlights and penetrations in ceilings and bulkheads where services are located.

Example installation guide (source CSR Redbook)



Example acoustically rated downlight (source CSR Redbook)



Exhaust Air Grilles

Exhaust air grilles in the bathroom ceiling, where pipes or other services from another apartment pass through the ceiling space, will require either of the following acoustical treatment options:

- Services in the ceiling space lagged using Nuwrap 5 **or** Soundlagg 4525C **or** Acoustiflex PL4.5/15 pipe lagging; OR
- Metal plenum box installed over the air grilles, internally lined with 50 mm thick glasswool insulation (density 32 kg/m³), faced with a minimum of 20% open area perforated steel or foil. The box should be roughly cubic in shape with each side having a clear inside dimension approximately twice that of the neck diameter of the diffuser or the major dimension of a rectangular air grille.

If any services serve one sole occupancy unit and pass through the ceiling bulkhead in a living room or bedroom of a separate sole occupancy unit where an exhaust or supply grille serves a habitable room (living room or bedroom) in that ceiling bulkhead, the services would be required to be acoustically lagged, insulation installed in the ceiling space beneath the services **and** a plenum box installed as described above. It is unlikely that this situation would occur in this development, but this advice is provided in case it does. The requirement does not relate to duct work passing through ceiling bulkheads that serves the same unit (e.g. a kitchen, laundry or toilet exhaust duct).

Duct, Soil and Waste Pipe Wall Penetrations

Ducts, soil and waste pipes required to penetrate the walls should be vibration isolated to ensure that the pipes do not directly contact any walls.

For non fire-rated walls, this may be achieved by providing a clearance of 10 – 15 mm between the full perimeter of the duct / pipe and the wall. The gap should then be sealed with a polyurethane or silicone mastic.

For fire rated masonry walls where the pipes are fitted with a fire collar, care should be taken to ensure that mortar does not bridge the pipe and the wall.

Access Doors or Panel

A door or panel, providing access to a duct, pipe or other service that passes through more than one sole occupancy unit, must not open into any *habitable room* (other than a kitchen).

The access door or panel in any other part must be firmly fixed so as to overlap the frame or rebate of the frame by not less than 10 mm, be fitted with a sealing gasket along all edges and constructed of -

- (i) wood, particleboard or blockboard not less than 33 mm thick; or
- (ii) compressed fibre reinforced cement sheeting not less than 9 mm thick; or
- (iii) other suitable material with a mass per unit area not less than 24.4 kg/m².

Alternatively, the access panels can be propriety R_w 30 or R_w + C_{tr} 25 access panels (available from manufacturers and suppliers such as Panther Panels from Rondo www.rondo.com.au/products/access-panels/panther-access-panels/, or Trafalgar Access Panels www.taccess.com.au).

Water Supply Pipes

A water supply pipe that is required to pass through an acoustically rated wall must-

- only be installed in the cavity of discontinuous construction; and
- in the case of a pipe that serves only one *sole-occupancy unit*, not be fixed to wall leaf on the side adjoining any other *sole-occupancy unit* and have a clearance not less than 10 mm to the other wall leaf.

Electrical Outlets

Electrical outlets required to be installed in an acoustically rated wall must be offset from each other-

- in masonry or concrete block walling, not less than 100 mm; and
- in timber, steel frames or Hebel walling, not less than 300 mm.

Chasing of Services in Walls

The BCA *Deemed-to-Satisfy* construction requires that services are not chased into concrete or masonry elements so that the acoustic performance of walls and floors is maintained. In our opinion, chasing of electrical cables in walls will not reduce the acoustical performance of

the walls and will be acoustically acceptable providing that the chasing is not deeper than approximately 20 mm and the chased area is backfilled with mortar.

Ducts, soil, waste or water pipes should not penetrate through masonry sections of an acoustically rated wall.

Ducts, soil, waste or water pipes should not be chased in the acoustically rated walls or floors.

Pumps

A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.

6. CONCLUSION

An acoustical assessment for alteration and additions to an approved residential flat building at 47 to 49 Percy Street, Bankstown, NSW, was undertaken.

Consideration was given to noise emission arising from the operation of the mechanical plant servicing the building and compliance with the acoustical provisions of Part F7 of the BCA.

A further assessment of mechanical plant noise emission will be undertaken prior to the issue of a Construction Certificate as detailed in Section 4 of this Report.

Recommendations are made in Section 5 of this report to address the BCA *Deemed-to-Satisfy Provisions* and / or *Performance Requirements* of Part F7 for the construction of internal building elements.



Matthew Harwood, MAAS

Director & Principal Consultant

Harwood Acoustics Pty Ltd

Attachments:-

Important Note

- Appendix A – Noise Survey Instrumentation

Important Note

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Noise Survey Instrumentation	Appendix A
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The instrumentation used during the noise surveys consisted of the following:-

Description	Model No.	Serial No.
SVANTEK Sound Level Meter	957	15395
Svantek Acoustical Calibrator	SV 34A	58762
ARL Noise Logger	EL-315	15-199-417

The sound level meters conform to Australian Standard AS IEC 61672.1-2004: 'Electroacoustics - Sound level meters – Specifications' as Class 1 precision sound level meters.

The EL-315 noise logger conforms to Australian Standard AS 1259 as a Type 2 sound level meter.

The calibration of the meters was checked before and after the measurement periods. No significant system drift occurred over the measurement periods.

The sound level meters and calibrator have been checked, adjusted and aligned to conform to the factory specifications and issued with conformance certificates as required by the regulations.