

1 Application of Guidelines

The Acoustic requirements outlined in this part of the Guidelines are based on best practice and they are provided as a guide. These requirements should not override other more stringent requirements as mandated by the local Authorities.

Acoustic requirements within this Acoustic Guideline are in addition to any other non-acoustic requirements such as structural integrity, fire rating, material compatibility, etc.

2 Architectural Elements

1 Walls

Minimum STC/Rw Requirements

The recommended Rw ratings for the various space's types are shown in the table below. Details of corresponding wall types are presented in Part G - Appendix 1.

Space Type	Proposed Rating
Store Rooms, Utilities	35
Toilet, Change Rooms, Ensuite	40
General Office, Lounge	40 (35 for wall to corridor)
Interview, Consult/Exam, Treatment, Inpatient bed rooms	45 (40 for wall to corridor)
AV room, Dirty Utility or Lounge adjacent to Inpatient bed rooms	50 (40 for wall to corridor)
Plant room walls adjacent to Offices/ Inpatient Bedrooms or Suites	55

Table 1 – Required Wall Rating

*Note – These ratings are laboratory/design ratings. After construction, a field measured rating will commonly be less than the laboratory recommended rating. This can occur as a result of field-testing uncertainties (ie – test is not conducted under laboratory conditions). When verification testing, any field test rating must be within at least 5 Rw points of the design rating. When verification testing, and field measured acoustic performance (R'w) must be within 5 points of the specified design Rw rating.

Carry out the installation of all walls/partitions in a manner that will not reduce the performance of the walls below the tabled Rw requirements. This includes but not limited to the proper filling of joints between blocks/panels, back filling with mortar any chasing of walls and sealing of wall junctions.

Unless stated otherwise all acoustically rated walls shall be installed slab-to-slab and sealed at the head.

Penetrations

Acoustically treat all penetrations through walls to maintain the nominated acoustic rating as listed in above.

No penetrations are to be made into the wall constructions unless specified or shown in the drawings.

Wall Junctions and Mullions

Unless otherwise detailed in this acoustic specification, with the exception of set plasterboard-to-plasterboard sheet joints acoustically seal all vertical and horizontal wall junctions using a flexible 100% polyurethane flexible sealant (10-15mm high joint with minimum 10mm sealant bead depth, plus foam backing rod).

Acoustically seal all vertical and horizontal junctions between wall panels and plasterboard wall sheeting required to have an acoustic rating.

Brick/Blockwork

Lay brick/blockwork with full beds and perpends in walls required to have an acoustic rating.

Seal vertical and horizontal wall junctions/joints using a fire rated flexible sealant (10-15mm high joint with minimum 10mm sealant bead depth, plus foam backing rod). Seal intersecting brick/blockwork walls either by keyed together or by leaving a gap and using a fire rated flexible sealant (10-15mm wide joint with minimum 10mm sealant bead depth, plus foam backing rod).

Sealants

Carry out sealing of joints in acoustic walls using a fire rated flexible sealant equal to low modulus, non-slumping PSA composite acoustic sealant.

Manufacturer's Recommendations

Install all systems in accordance with the manufacturer's requirements and recommendations.

Contact with services

Prevent contact between any part of the walls or the ceiling supports with water, waste, stormwater or air conditioning piping. Maintain a minimum 15mm gap between the pipes and ceiling or ceiling supports.

Medical Service Panels

If Medical Service Panels are recessed into an acoustic partition, provide 1mm thick sheet metal box in wall cavity behind the panel with any penetration of the box and they must be sealed air-tight.

Services Walls

Where toilets are located on a wall adjacent to a noise sensitive space (inpatient bed room, office, consult, treatment, lounge, a secondary/dummy wall is required.

Refer to Figure 6 in Part G - Appendix I for detail of constructing this secondary wall.

2 Glass Partitions and Viewing Panels

Glass partitions in corridor walls with doors

- Glass panels to meeting rooms, head of department, teleconference and interview rooms are to consist of 10.38mm laminated glass.
- Remaining glass panels to consist of 6.38mm laminated glass.

Glass partitions in wall with no doors

In this scenario, the wall rating is not reduced as a result of a door. Any glass partition will therefore significantly decrease the potential acoustic rating of a wall. This will require a double-glazed system consisting of 10mm glass/70mm airgap/10mm glass.

3 Partition Infills at Façade Junctions

At the junction of partition to façade, if the partition stops short of the junction and an infill piece is used (either for light ingress or for servicing of jockey sashes), the acoustic performance of the wall should not be reduced as a result the infill piece.

4 Operable Partitions

Operable walls or partitions when used, it is recommended to have no less than Rw 45.

5 Doors

The acoustic performance between adjacent spaces is generally determined by the rating of the wall. However, other elements such as doors will often have a lower acoustic performance than the wall and will limit the potential performance of the wall.

Recommended door constructions are outlined below.

Door	ALC Recommended Minimum Constructions
Plant Rooms	45mm thick solid core doors with full perimeter seals. To be determined based on final plant selections.
Corridor to: Meeting, Consult, Interview, Theatres, Head of Department Office, Treatment	Minimum 38-40mm thick solid core doors with full perimeter seals.
Remaining Doors (including ward and typical office)	Min 35mm solid core doors with gaps minimised (undercut no more than 10mm).
Inter-connecting door between offices/consult rooms (if proposed)	Rw 45 proprietary acoustic door.

Table 2 – Minimum Requirements for Door Construction

When the use of door seals is required for functionality/servicing reasons, they are considered to override acoustic requirements.

Carry out the installation of all doors and seals in a manner that will not reduce the performance of the doors including:

- Doors to occupied rooms are not to have grilles.
- Ensure doors are installed without warps and hung with even gaps.
- Installing door with minimum gap at door bottom complying with manufacturer's requirement. Threshold under door seal is to be level and flat. Install aluminum threshold plate under door seals where door seals close onto carpet.
- Installing seals where nominated.
- Adjusting seals so that they are acoustically effective around the full perimeter without excessive effort required to close the doors.
- Ensure that the door hardware does not foul the seals and the seals form a continuous seal around the door perimeter.

Manufacturer's recommendations

Install all systems in accordance with the manufacturer's requirements and recommendations.

6 Floors

Minimum STC/R_w Requirements

The following should be considered as the minimum requirement:

Floor Type	Nominated R _w /STC Values*
Between Floor Areas - Generally	50
Between Floors – Plant Rooms	60

Table 3 – Recommended Minimum Airborne Noise Floor Performance Criteria

*Field tested performance (R_w/FSTC) must be within 5 rating point of the design acoustic performance listed in this table.

Carry out the installation of floors in a manner that will not reduce the performance below the tabled acoustic requirements. This includes but not limited to the proper filling of joints, back filling with non-shrink grout any chasing, and installation of ceilings where required to comply with the overall floor/ceiling rating.

Impact Noise Isolation

Any timber floor finish to be located over an inpatient bed room, office, meeting room, interview room, consult, medical suites is to have 5mm thick acoustic undelay installed below it (equal to Vibralag from Acoustic Supplies).

Penetrations

Acoustically treat all penetrations through floors to maintain the nominated acoustic rating as listed in the table of minimum requirement.

No penetrations are to be made into the floor constructions unless specified or shown in the drawings.

Floor joints

Unless otherwise detailed in this acoustic specification, seal construction joints using a fire rated flexible sealant (10-15mm high joint with minimum 10mm sealant bead depth, plus foam backing rod).

Sealants

Carry out sealing of joints in floors using a fire rated flexible sealant equal to low modulus, non-slumping PSA composite acoustic sealant.

Manufacturer's recommendations

Install all systems in accordance with the manufacturer's requirements and recommendations.

7 Ceiling/Roof and Room Finishes and Reverberant Noise Controls

The recommended reverberation times represent appropriate room acoustic conditions for different building areas can be found below.

Space/Activity Type	Recommended Internal Reverberation Times
Wards	0.4s – 0.7s
Waiting rooms, reception areas, lobbies	0.4s – 0.7s
Consulting rooms, interview/quiet rooms.	0.4s – 0.6s
Private Offices	0.6s – 0.8s
General office areas (open plan offices)	0.4s – 0.6s
Common areas	Minimised as far as practicable
Operating Theatres	Minimised as far as practicable

Table 4 – Recommended Reverberation Times

In addition, light fittings are not to have slot diffusers or similar openings into the ceiling space which would create a noise transmission path from room to room via the ceiling cavity.

In the event that a slotted, perforated or other penetrated ceiling is installed:

- Mechanical services are not recommended to be installed in this ceiling space.
- All bounding walls of the room are to be constructed slab to slab.
- All stormwater and waste water pipework is to be wrapped with two layers of foam backed loaded vinyl.

Ceiling Tiles

Any mineral ceiling tile required to achieve the CAC and NRC ratings are shown in the construction diagrams in Appendix I.

Ceiling tiles are to have a minimum NRC of 0.6 as recommended reverberation times.

Required CAC rating is dependant on the acoustic rating of the adjacent wall. Refer to details in appendix 1 for required CAC rating. CAC 40 tiles will be required for all office, consult, interview, quiet, toilets, lounge, staff rooms and inpatient unit.

Penetrations

Acoustically treat all penetrations through ceilings to maintain the nominated acoustic rating as listed in the table of minimum requirement.

No penetrations are to be made into the ceiling constructions unless specified or shown in the drawings.

Sealants

Carry out sealing of joints in acoustic walls using a fire rated flexible sealant equal to low modulus, non-slumping PSA composite acoustic sealant.

Manufacturer's Recommendations

Install all systems in accordance with the manufacturer's requirements and recommendations.

Contact with Services

Prevent contact between any part of the ceilings or the ceiling supports with water, waste, stormwater or air conditioning piping. Maintain a minimum 15mm gap between the pipes and ceiling or ceiling supports.

Resiliently Suspended Ceilings

Where resiliently suspended ceilings are nominated (if any), use resilient ceiling hangers equal to CSR where the ceiling cavity is 40mm or less and Embelton RHC elsewhere. Submit alternatives for approval by the Acoustic Consultant.

Install ceilings so that there is no direct contact between the ceiling and the slab above, except via the resilient hanger. Acoustically seal all penetrations through the ceilings using a resilient sealing method that prevents the transfer of vibration from the ceiling to the item penetrating the ceiling.

8 Ducted skirtings, sills and sub-sills

Rw 45 walls

where a ducted skirting or a sill/subsill is continuous through a Rw 45 wall – pack the skirting/sill with 32kg/m³ mineral wool insulation for 300mm on each side of the wall.

Rw 50 walls

- Ducted skirting - where a ducted skirting is continuous through a Rw 45 wall – pack the skirting/sill with 32kg/m³ mineral wool insulation for 300mm on each side of the wall.
- Sill/sub-sill – it is not recommended that there be a sill/subsill continuous through an Rw 50 wall. Partition wall sheeting to run through the sill, to prevent continuous cavity.

9 Access Panels

Install acoustically certified access panels to equal the acoustic performance of the element in which they are installed.

Install access panels in ceilings over bathrooms, laundries and kitchens, and on risers containing waste pipes in bathrooms, laundries and kitchens with a minimum rating of Rw 30.

Access panels for waste piping shall not be located on the sides of risers containing waste pipes facing habitable rooms.

Access panels below fan coil units (if any) to have same surface density as ceiling in which they are installed.

10 Risers

Risers in plant rooms do not require acoustic treatment.

Risers located in wet areas should follow the construction as shown in Figure 1 below.

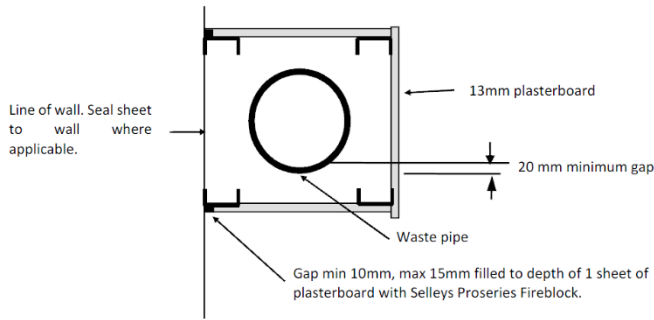


Figure 1 - Recommended constructions for riser in wet area

Risers located outside of wet areas should follow the construction as shown in either Figure 2 or Figure 3 below. It is recommended a single type of construction system will be applied through the building.

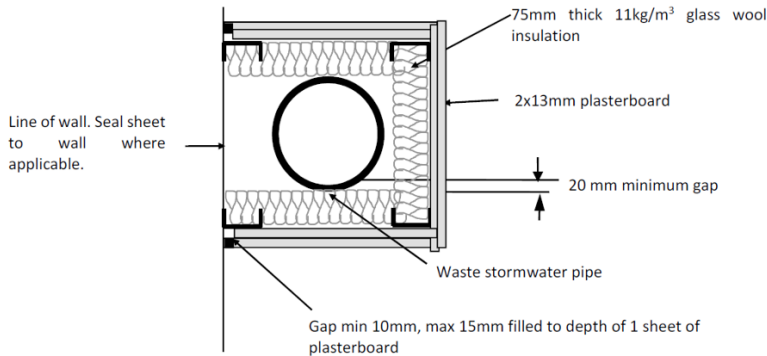


Figure 2 - Recommended construction for riser outside of wet area

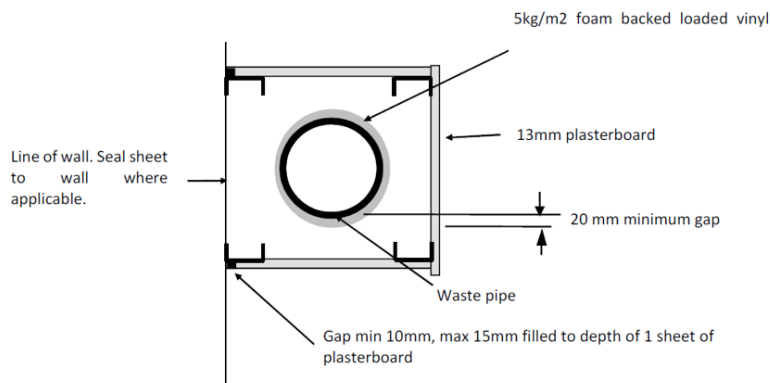


Figure 3 - Recommended construction for riser outside of wet area

11 Acoustic Details

Refer to Part G - Appendix I.