

dBlue Waste Pipe Systems

Acoustic Specification

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Attention To	Vinidex Pty Ltd

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1 INTRODUCTION

This report sets out the minimum acoustic treatments to the dBlue waste pipe system to comply with the acoustic amenity requirements of the Building Code of Australia pertaining to waste and stormwater pipe noise separation.

Recommendations outlined in this report have been determined from acoustic measurements in a mock up test chamber. Acoustic treatments have been determined by conducting a 'like for like' comparison between dBlue and lagged PVC pipe which is most generally adopted as the current industry standard for the treatment of waste pipes (a test of equivalence).

2 BCA REQUIREMENTS

Acoustic requirements under the BCA relating to waste pipes are detailed in Part F5.6 which states:

F5.6 Sound insulation rating of services

(a) 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—

(i) 40 if the adjacent room is a habitable room (other than a kitchen); or

(ii) 25 if the adjacent room is a kitchen or non-habitable room.

(b) If a storm water pipe passes through a sole-occupancy unit it must be separated in accordance with (a)(i) and (ii).

3 RECOMMENDED ACOUSTIC TREATMENTS

Recommended acoustic treatments are nominated for the following location of waste and storm water pipes:

- Pipes located within risers
- Pipes located within ceiling cavities
- Pipes located within wall cavities

Acoustic treatments to satisfy the acoustic requirements are detailed below. Refer also acoustic details.

3.1 PIPES LOCATED WITHIN RISERS

Risers may be located within wet areas, habitable areas or a combination of both. Acoustic treatments to ensure compliance with these situations are detailed below.

3.1.1 Risers Solely within Wet Areas

dBlue pipes servicing waste and storm water located in risers solely within non-habitable areas (excludes kitchens) will not require any additional treatment provided that the risers are constructed from a minimum 13mm plasterboard.

It is also assumed that the risers are acoustically sealed below the ceiling line of the wet area in which it is installed.

3.1.2 Risers Facing Habitable Areas or Combination of Wet and Habitable Areas

Acoustic treatments to dBlue pipes servicing waste and storm water located within a riser facing a habitable area will require the following treatment (to the riser and pipe):

Option 1 –

- One layer of 13mm plasterboard (riser wall) on studs with 75mm thick 11kg/m³ density insulation within the riser cavity;
- dBlue pipes are wrapped with 55mm thick R1.3 glasswool insulation with heavy duty foil equal to Bradford Heavy Duty Anticon;
- The riser is to be acoustically sealed.

Option 2 –

- One layer of 13mm plasterboard (riser wall) on studs with 75mm thick 32kg/m³ density glass wool insulation in the stud cavities with no gaps;
- The riser is to be acoustically sealed.

3.2 PIPES LOCATED WITHIN CEILING CAVITIES

Waste and storm water pipes may be located within wet area and habitable ceiling spaces. The following acoustic treatment would be required to satisfy the BCA.

3.2.1 Wet Area Ceilings

dBlue pipes servicing waste or storm water located in ceilings solely within non-habitable areas (excludes kitchens) that do not share a common ceiling void with habitable areas will not require any additional treatment provided that the wet area ceiling is constructed from a minimum 13mm plasterboard.

3.2.2 Habitable Area Ceilings

dBlue pipes servicing waste or storm water located in ceilings within habitable areas, or in other ceiling voids connected to ceiling voids above habitable areas are to be acoustically treated as per the following:

Option 1

- There is to be a minimum 100mm gap between the bottom of the dBlue pipe and the top surface of the ceiling;
- 75mm thick 32kg/m³ density glass wool insulation is to be laid continuously on a minimum 13mm thick plasterboard ceiling for a minimum of 600mm measured horizontally from the pipe with batts tightly butted or overlapped. (Note where the ceiling cavity height exceeds 300mm then the horizontal distance in each direction should be double the ceiling cavity height.);
- There are to be no more than 4 untreated light penetrations for every 6m² of ceiling.
- There are no other penetrations in the ceiling.

Option 2

- The dBlue pipe is to be wrapped with 55mm thick R1.3 glasswool insulation with heavy duty foil equal to Bradford Heavy Duty Anticon within habitable ceilings; and
- There is to be a minimum 100mm gap between the bottom of the dBlue pipe and the top surface of the ceiling;
- 75mm thick 11kg/m³ density glass wool insulation is to be laid on a minimum 13mm thick plasterboard ceiling for a minimum of 600mm measured horizontally from the pipe with batts tightly butted or overlapped;
- There are to be no more than 4 untreated light penetrations for every 6m² of ceiling.
- There are no other penetrations in the ceiling.

3.3 GENERAL

- The dBlue pipe is not to make physical contact with any plasterboard, stud or ceiling tracks.
- Any return air grilles or ceiling penetrations are to be fitted with treated cushion head boxes to the advice of the acoustic engineer.

3.4 INTUMESCENT FIRE WRAPS

Where pipe penetrations in slabs are to be fire rated and intumescent wrapping is proposed, the following acoustic treatment should be adopted. Refer also to AC005.

- Incorporate a section of PVC pipe through the slab penetration which will sit slightly proud of the slab.
- Wrap the PVC pipe through the penetration as per the fire rating requirements.
- Connect dBlue pipe either side of the pipe penetration.

3.5 RESILIENT HANGERS

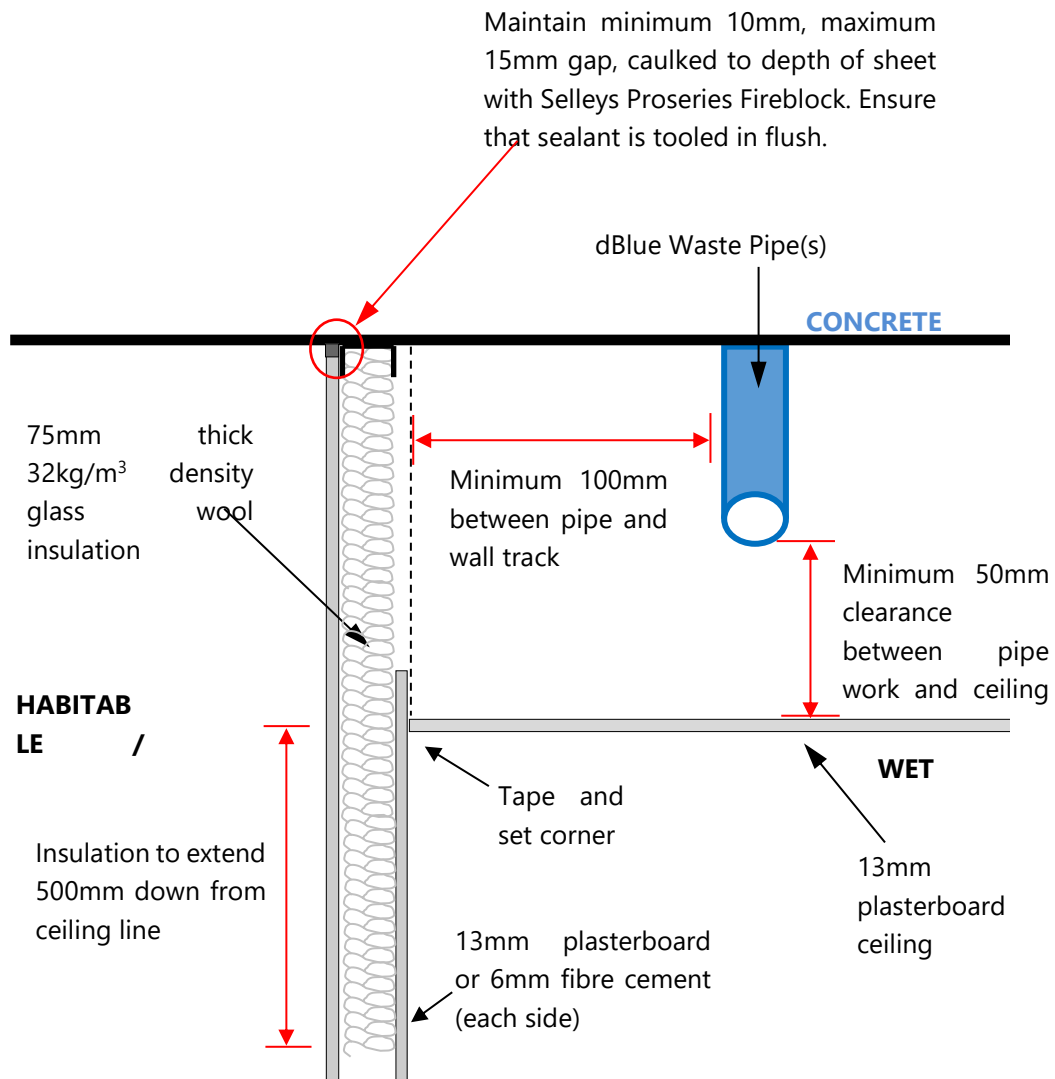
Resilient hangers or bracket supports will not be required where the pipe is suspended from or bracket fixed to masonry, brick or concrete.

4 CONCLUSION

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
George Wei



SECTION ELEVATION

NOTE:

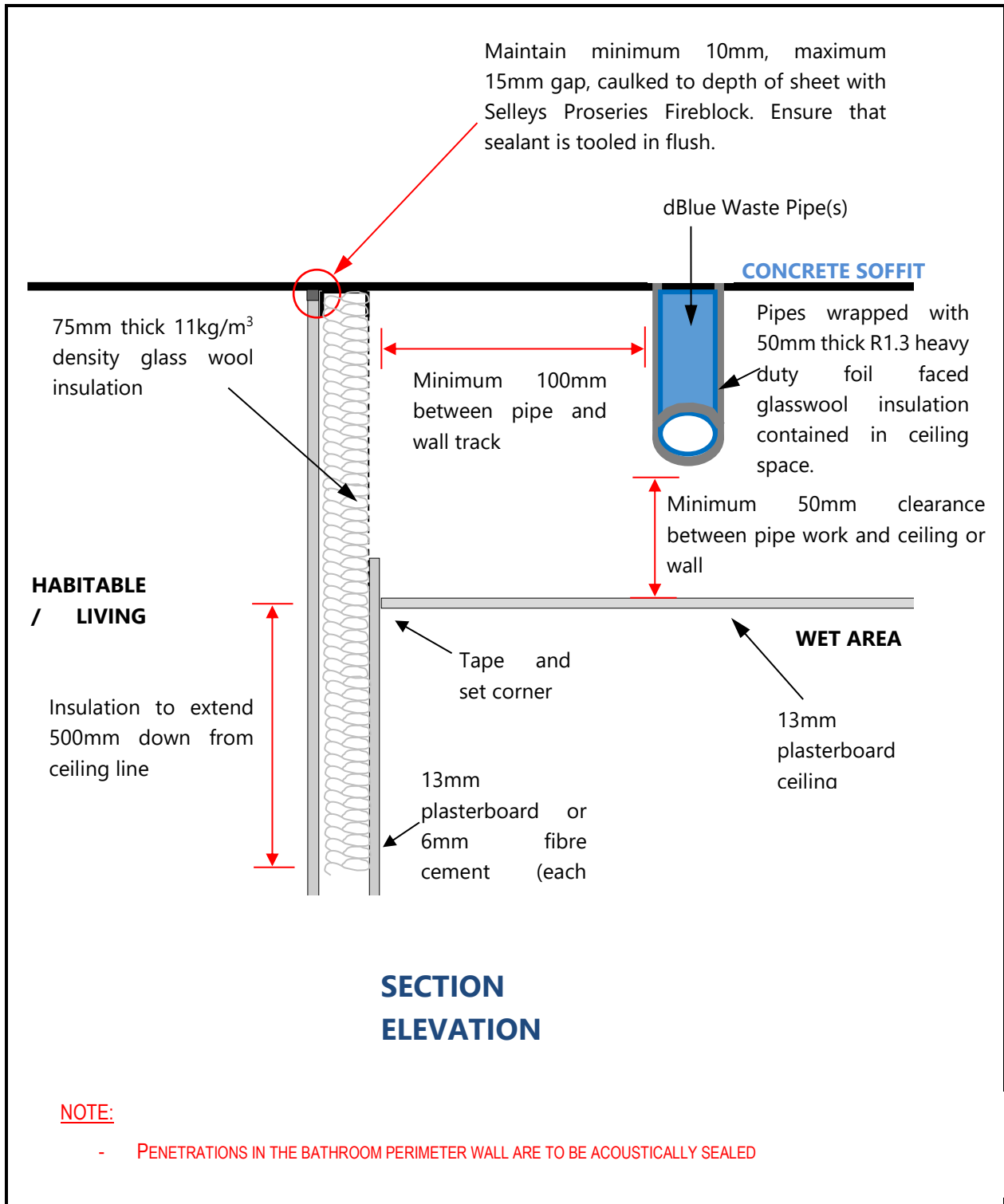
- PENETRATIONS IN THE BATHROOM PERIMETER WALL ARE TO BE ACOUSTICALLY SEALED


WALL/ CEILING REQUIREMENTS FOR WET AREA PERIMETER WALL (INTRA- TENANCY)

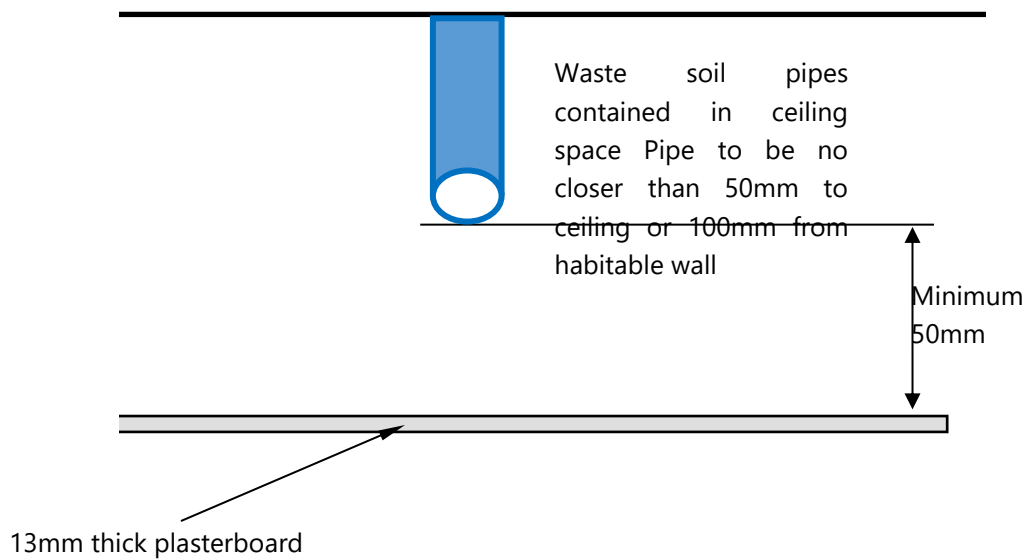


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WALL/ CEILING REQUIREMENTS FOR WET AREA PERIMETER WALL (INTRA- TENANCY)				
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WET

CEILING SECTION

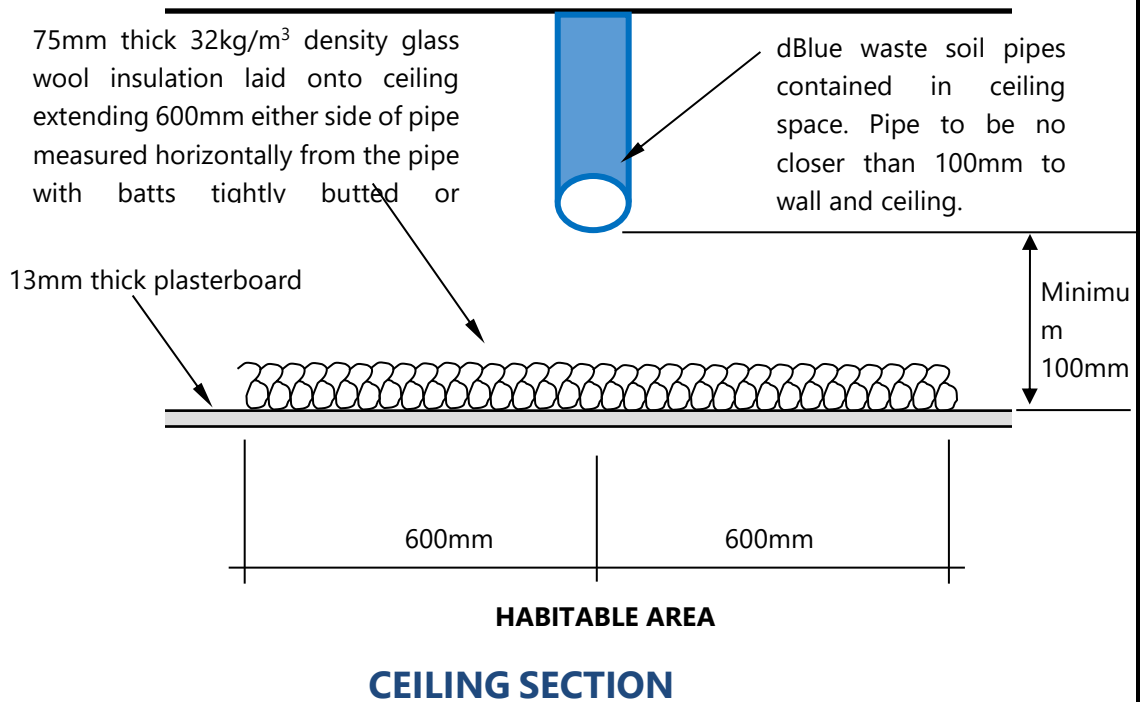
WASTE PIPE TREATMENT ABOVE WET AREAS

$R_w + C_{tr} 25$ (equivalent)




dBlue Waste Pipe System

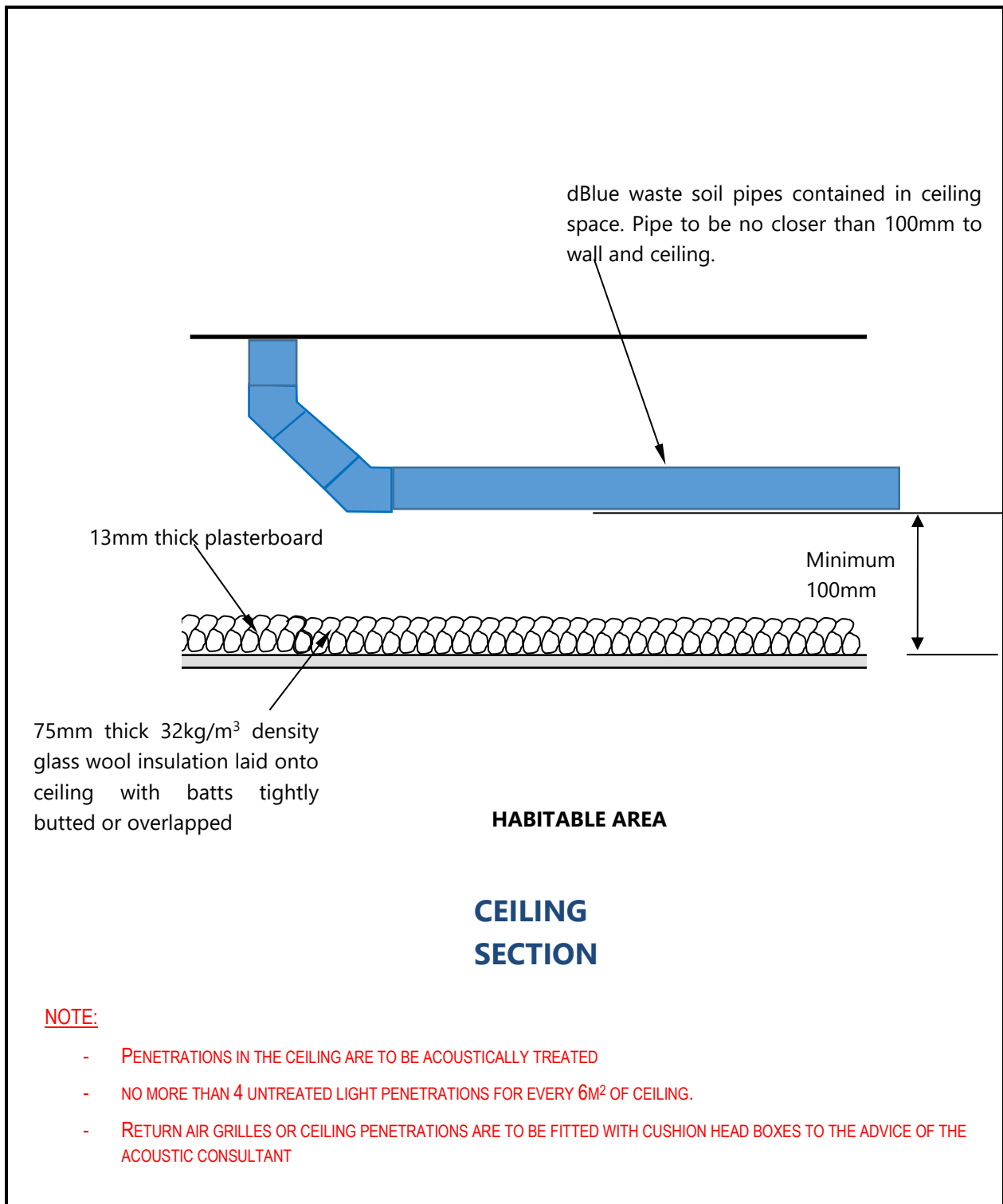
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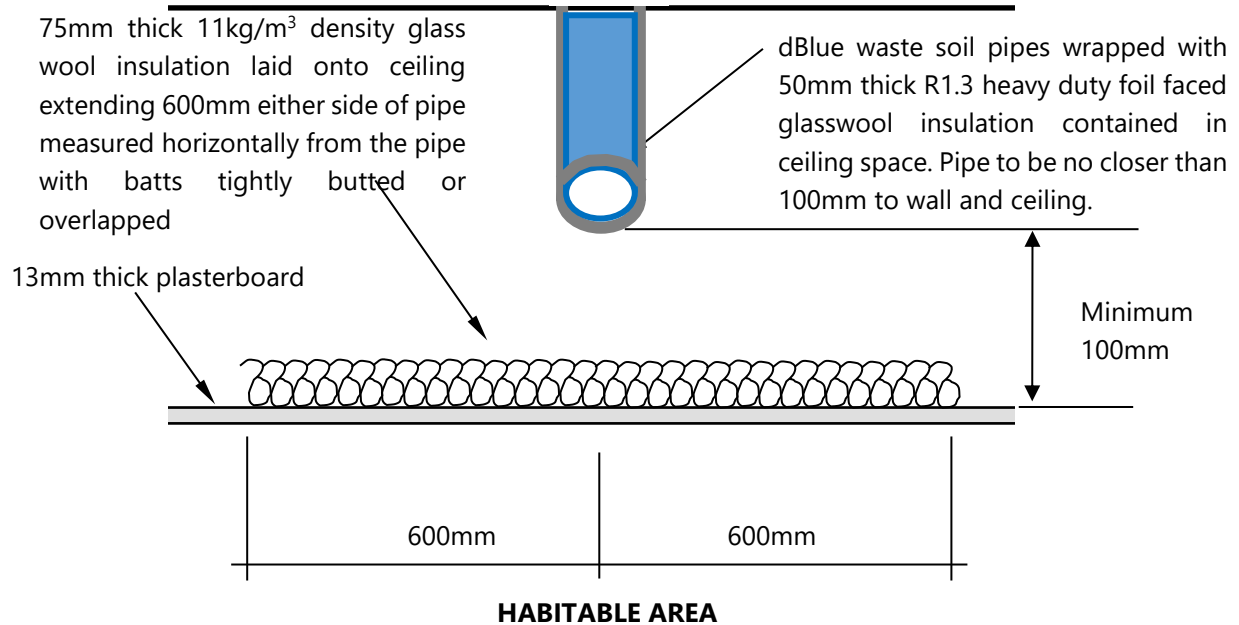
NOTE:

- IF CEILING SPACE HEIGHT EXCEEDS 300MM THEN INSULATION HORIZONTAL DISTANCE SHOULD BE MIN DOUBLE THE CEILING HEIGHT IN EACH DIRECTION.
- PENETRATIONS IN THE CEILING ARE TO BE ACOUSTICALLY TREATED
- NO MORE THAN 4 UNTREATED LIGHT PENETRATIONS FOR EVERY 6M² OF CEILING.
- RETURN AIR GRILLES OR CEILING PENETRATIONS ARE TO BE FITTED WITH CUSHION HEAD BOXES TO THE ADVICE OF THE ACOUSTIC CONSULTANT

WASTE PIPE TREATMENT ABOVE HABITABLE AREAS $R_w + C_{tr} 40$ (equivalent) Option 1 – Higher Density Insulation				
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ASTE PIPE TREATMENT ABOVE HABITABLE AREAS $R_w + C_{tr} 40$ (or equivalent) Option 1 – Higher Density Insulation				
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CEILING SECTION

NOTE:

- IF CEILING SPACE HEIGHT EXCEEDS 300MM THEN INSULATION HORIZONTAL DISTANCE SHOULD BE MIN DOUBLE THE CEILING HEIGHT IN EACH DIRECTION.
- PENETRATIONS IN THE CEILING ARE TO BE ACOUSTICALLY TREATED
- NO MORE THAN 4 UNTREATED LIGHT PENETRATIONS FOR EVERY 6M² OF CEILING.

WASTE PIPE TREATMENT ABOVE HABITABLE AREAS

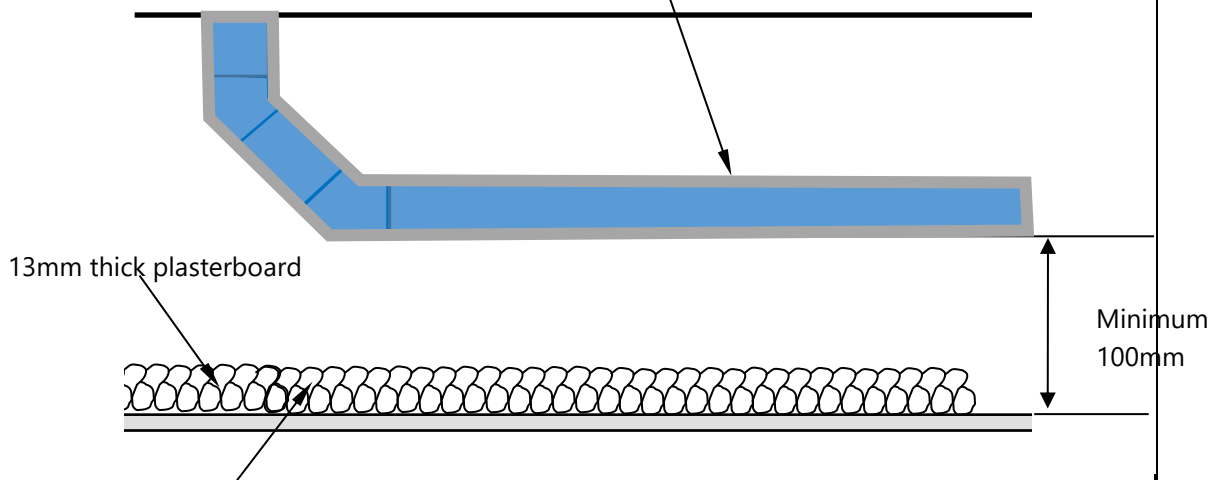
$R_w + C_{tr}$ 40 (or equivalent)
Option 2 – Anticon Wrapping



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dBlue waste soil pipes wrapped with 50mm thick R1.3 heavy duty foil faced glasswool insulation contained in ceiling space. Pipe to be no closer than 100mm to wall and ceiling.



75mm thick 11kg/m³ density glass wool insulation laid onto ceiling with batts tightly butted or overlapped

HABITABLE AREA

CEILING SECTION

NOTE:

- PENETRATIONS IN THE CEILING ARE TO BE ACOUSTICALLY TREATED
- NO MORE THAN 4 UNTREATED LIGHT PENETRATIONS FOR EVERY 6M² OF CEILING.
- RETURN AIR GRILLES OR CEILING PENETRATIONS ARE TO BE FITTED WITH CUSHION HEAD BOXES TO THE ADVICE OF THE ACOUSTIC CONSULTANT

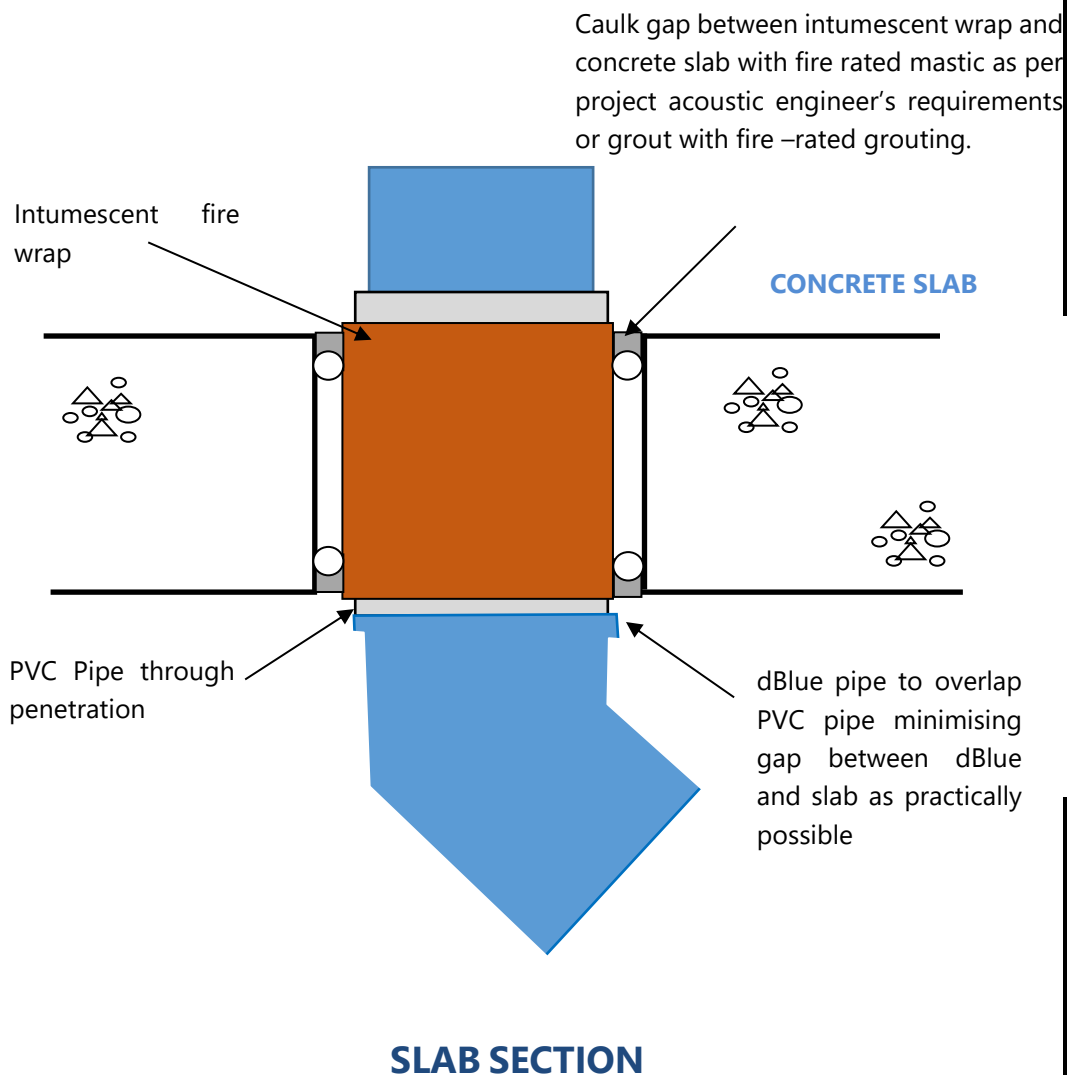
WASTE PIPE TREATMENT ABOVE HABITABLE AREAS

$R_w + C_{tr}$ 40 (equivalent)
Option 2 –Anticon Wrapping



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NOTE:

- PVC PIPE TO SIT SLIGHTLY PROUD ABOVE AND BELOW SLAB. GAP BETWEEN DBLUE PIPE AND SLAB TO BE MINIMISED AS PRACTICALLY POSSIBLE (IE MAXIMUM 10MM).
- ACOUSTIC TREATMENT TO DBLUE PIPE WITHIN THE CEILING SPACE TO BE AS PER PREVIOUS DETAILS

**dBlue FIRE RATED PIPE PENETRATION
DETAIL**



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