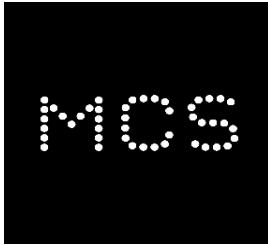


Numbers Sheet Name	Numbers Table Name
Scope	
	Table 1
Single Heat Pump	
	Table 1
Two Heat Pumps	
	Table 1
Four Heat Pumps	
	Table 1
Calculations	
	Table 1
Draft Assumptions	
	Table 1
Installer Summary	
	Table 1

Excel Worksheet Name

Scope
Single Heat Pump
Two Heat Pumps
Four Heat Pumps
Calculations
Draft Assumptions
Installer Summary



MCS Air Source Heat Pump Sound Ca

This spreadsheet provides a calculation tool for carrying out "Air Source Heat Pump Calculation (For Permitted Development) using this calculation tool.

MCS welcomes any suggestions for improvement or requests for feedback at feedback@mcscertified.com

Please note the following:

- 1) The spreadsheet is locked and data can only be entered via selection from a drop down list.
- 2) The "single heat pump" tab allows calculations in up to 1 heat pump.
- 3) The "two heat pumps" tab allows calculations in up to 2 heat pumps.
- 4) The "four heat pumps" tab allows calculations in up to 4 heat pumps. Please note this is outside the scope of MCS 020 a).

Whilst all reasonable care has been taken in the preparation of this document, the MCS Foundation does not guarantee of completeness or accuracy. The MCS Foundation does not accept liability for any errors or omissions in the document or requirements contained in the document by any third party.

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Version 1.1

calculator

ng out the sound calculations required by MCS 020 a)
velopment Installations)" and this document should be read prior to

notification of errors. Please submit feedback to

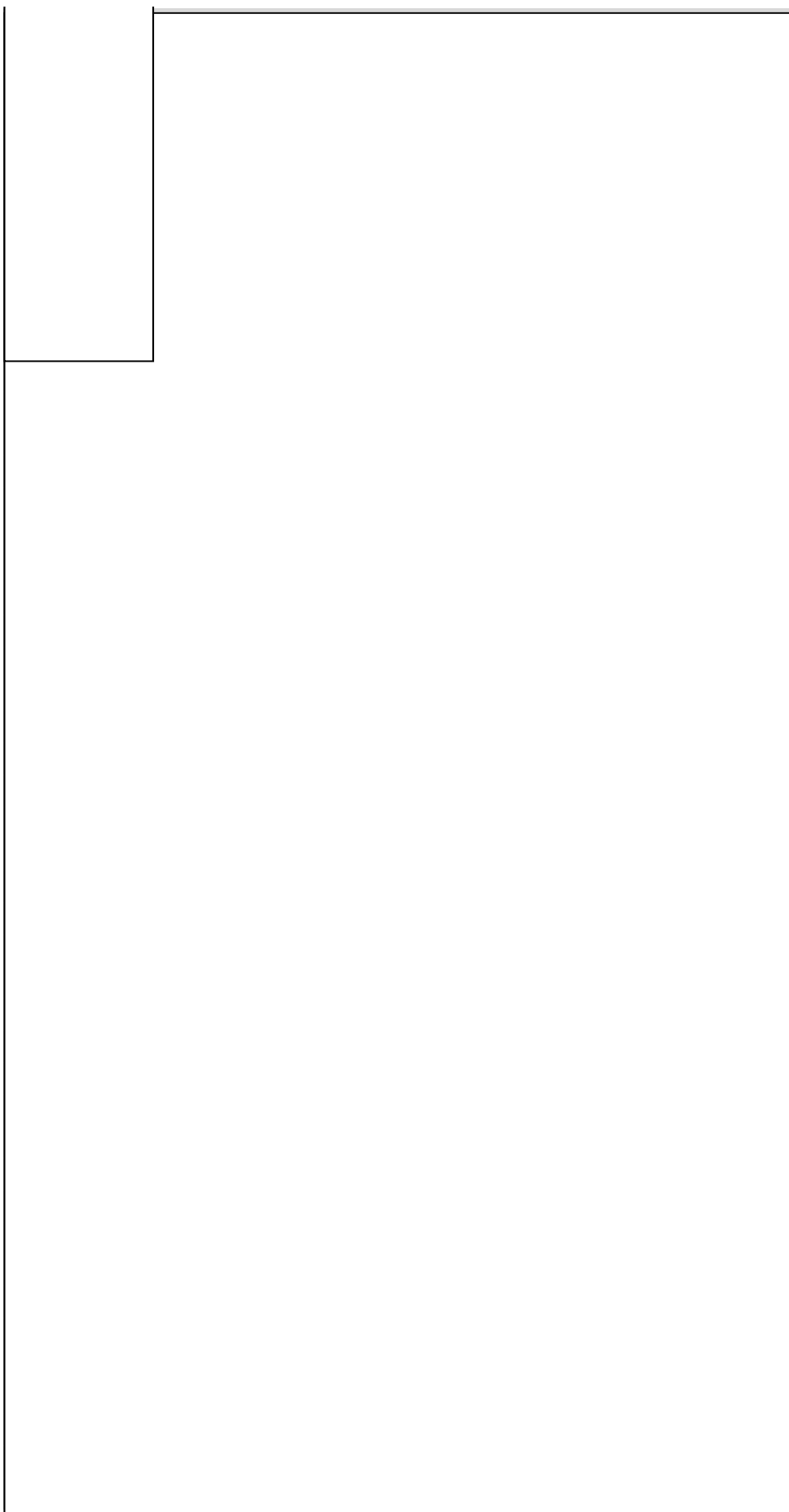
ntered into editable cells. Some cells require a value input and others

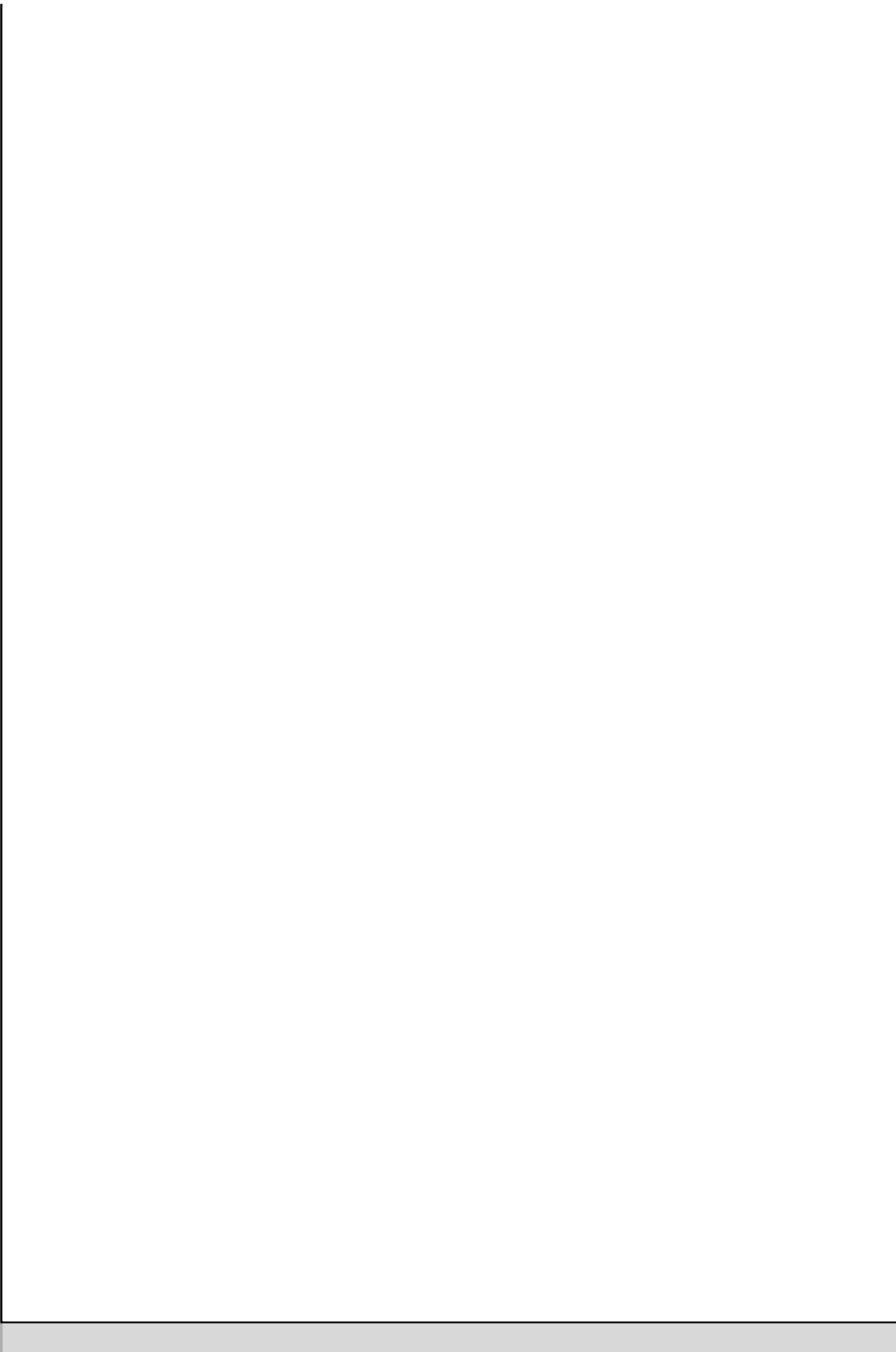
p to four assessment positions concurrently.

to four assessment positions concurrently that are impacted by both

ie assessment position that are impacted by up to four heat pumps.

aration of this document, it is provided on an "as is" basis without any
ervice Company Ltd and The MCS Foundation (and any related parties)
e document nor for the use or application of the information, standards,
rd party.

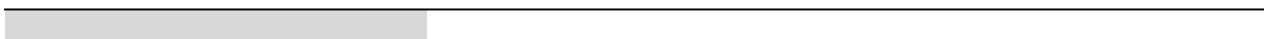


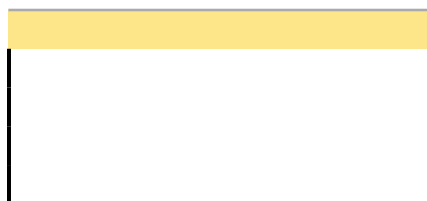


MCS 020(a) ASHP 10 York Place

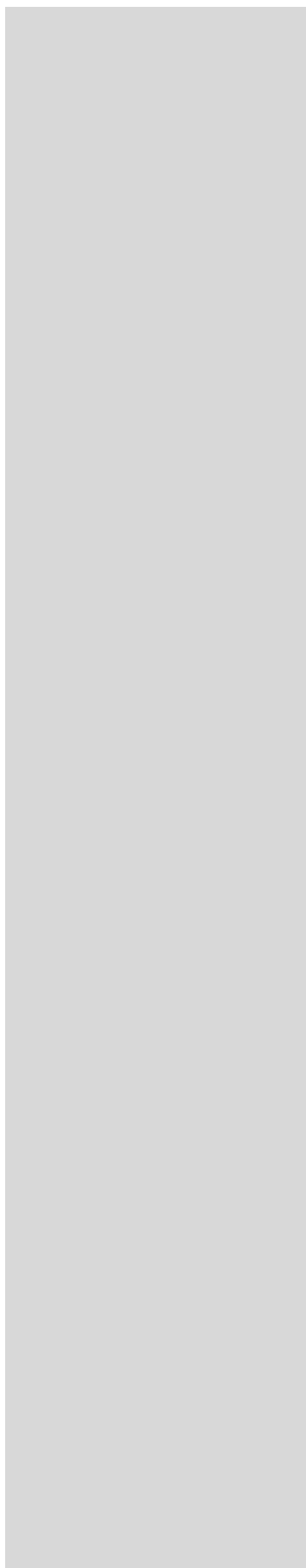
Project Details (optional)	
Installation address	10 York Place, Newport NP20 4GB
Heat pump make & model	Warmflow Zeno AS02-R290
Heat pump installation location	Rear wall location shown on planning drawings

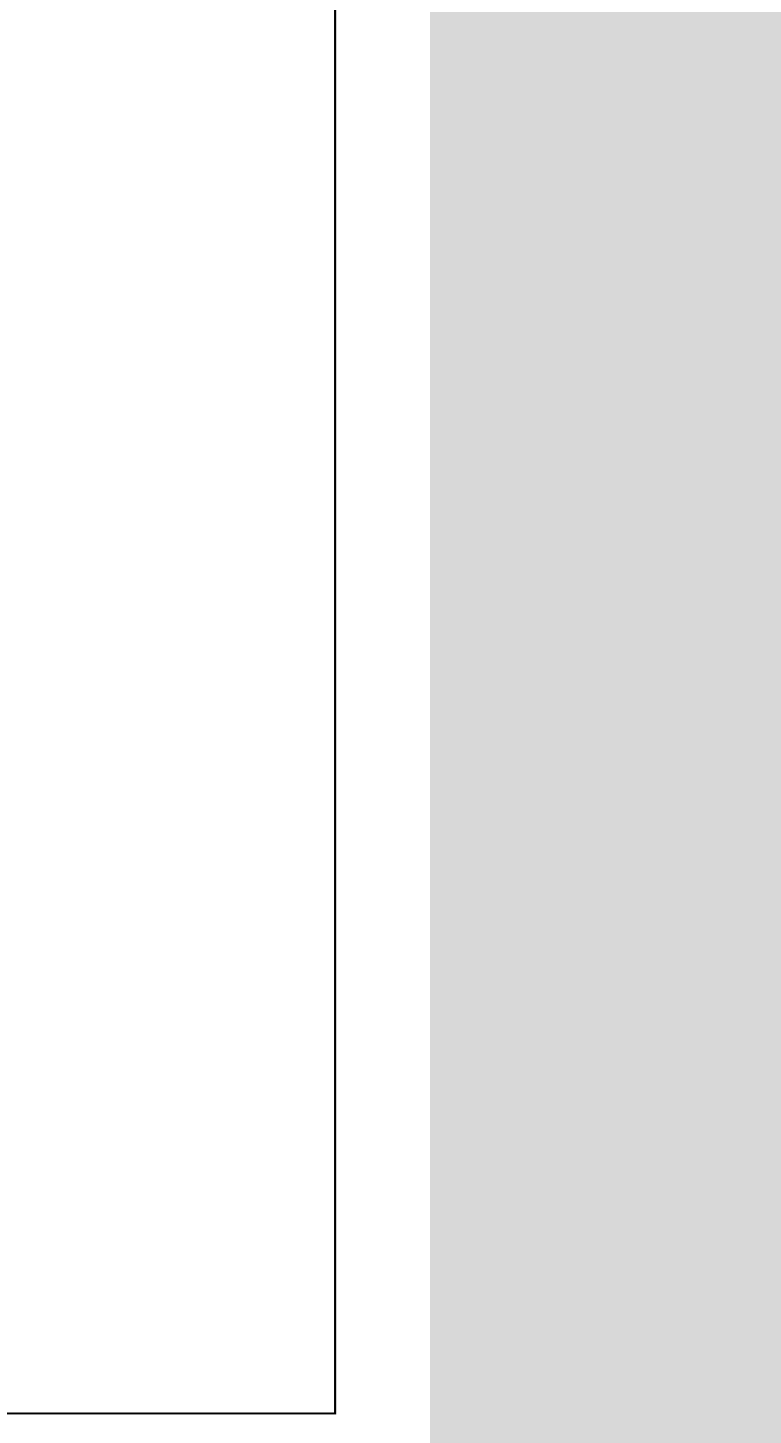
Assessment Position 1	Assessment Position 2	Assessment Position 3
24/06/2026	24/06/2026	24/06/2026
AP1: Nearest upper floor neighbouring window. Approx 7.0 m	AP2: Lower-level neighbouring opening behind breeze-block wall. approx. 6.0 m	AP3: Secondary upper-floor neighbouring window. approx. 8.0 m.
57	57	57
two reflective surfaces	two reflective surfaces	two reflective surfaces
7	6	8
no barrier	solid wall (mass $\geq 10\text{kg/m}^2$)	no barrier
full view	partial view	full view
35.1	31.5	34.0
pass	pass	pass

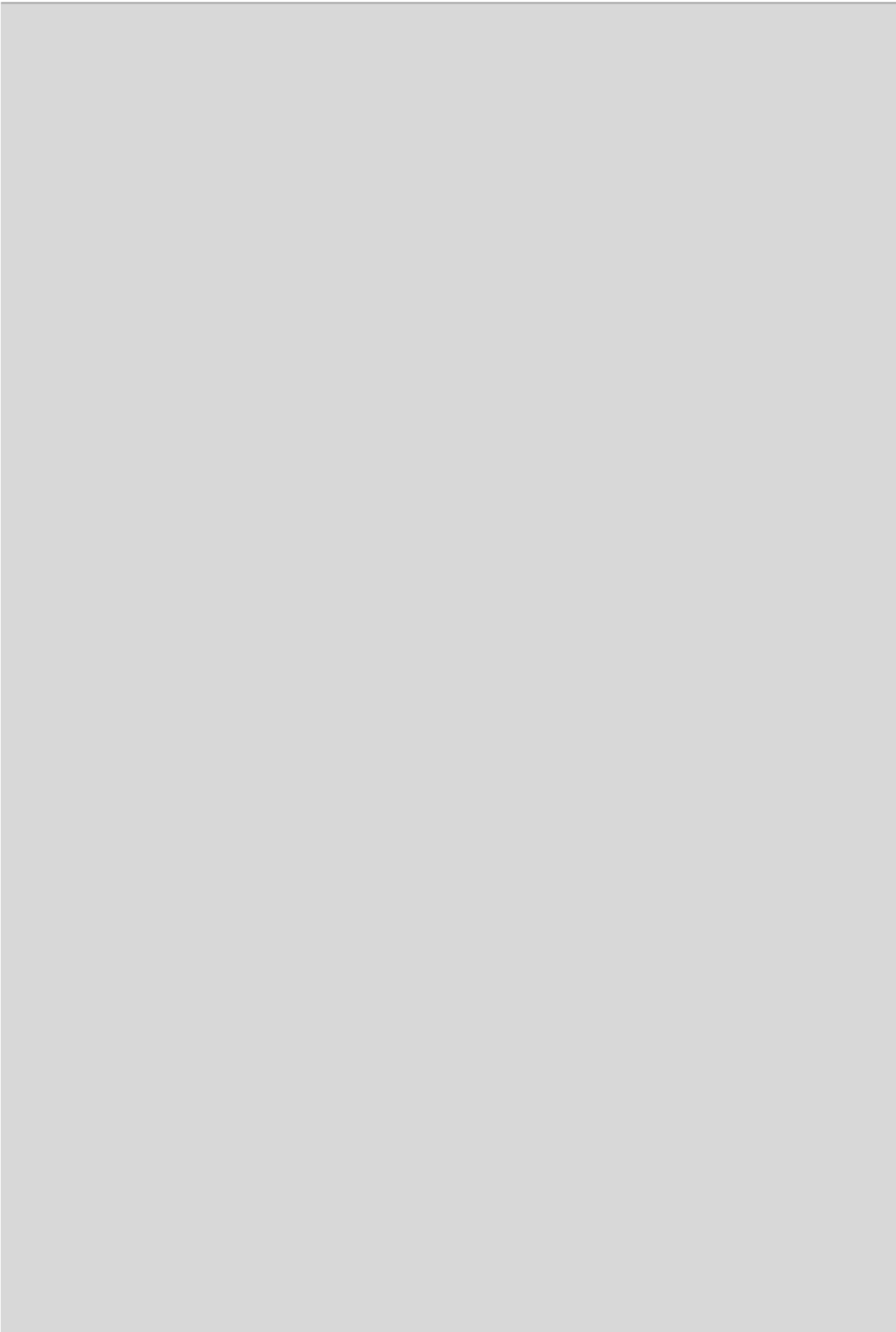


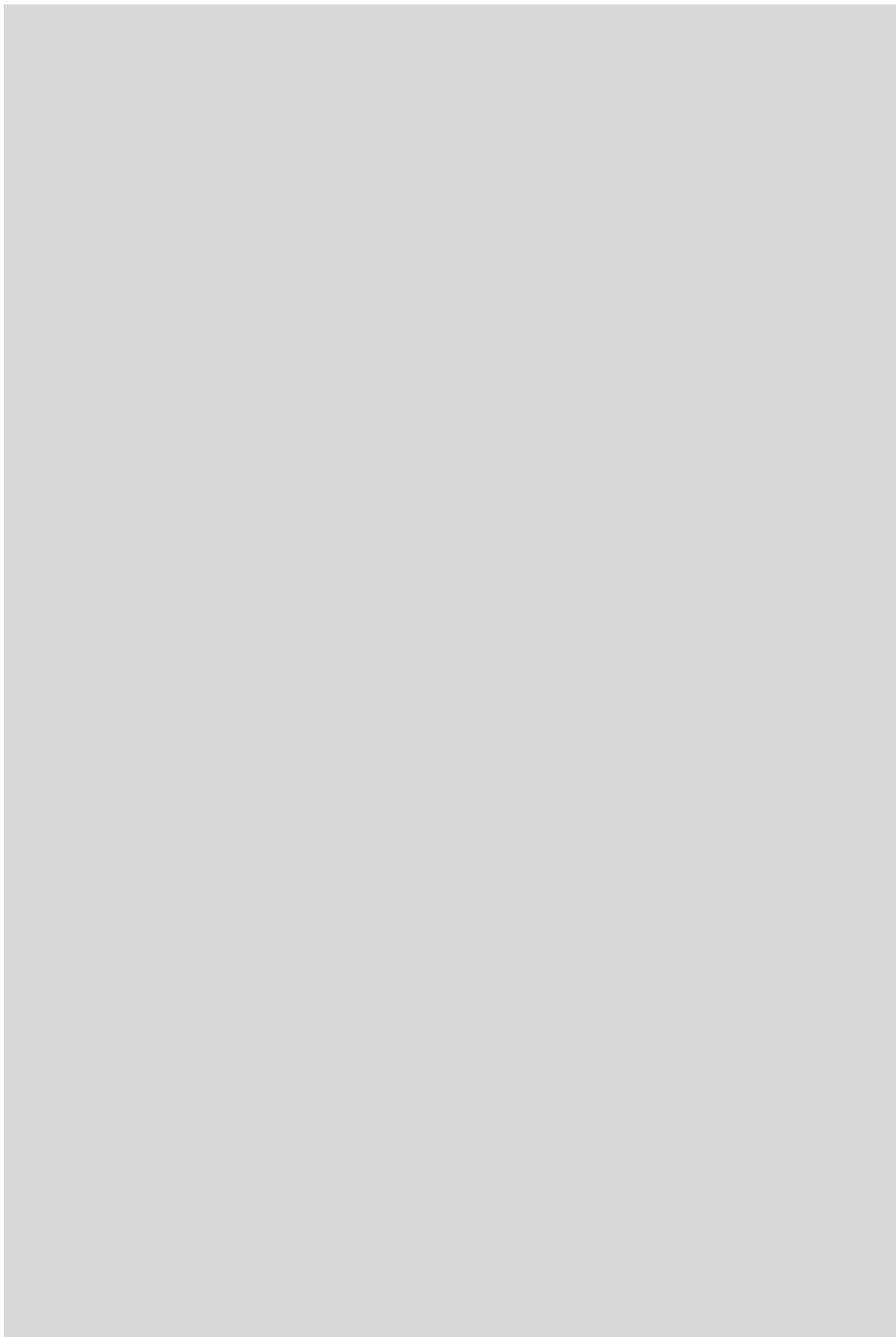


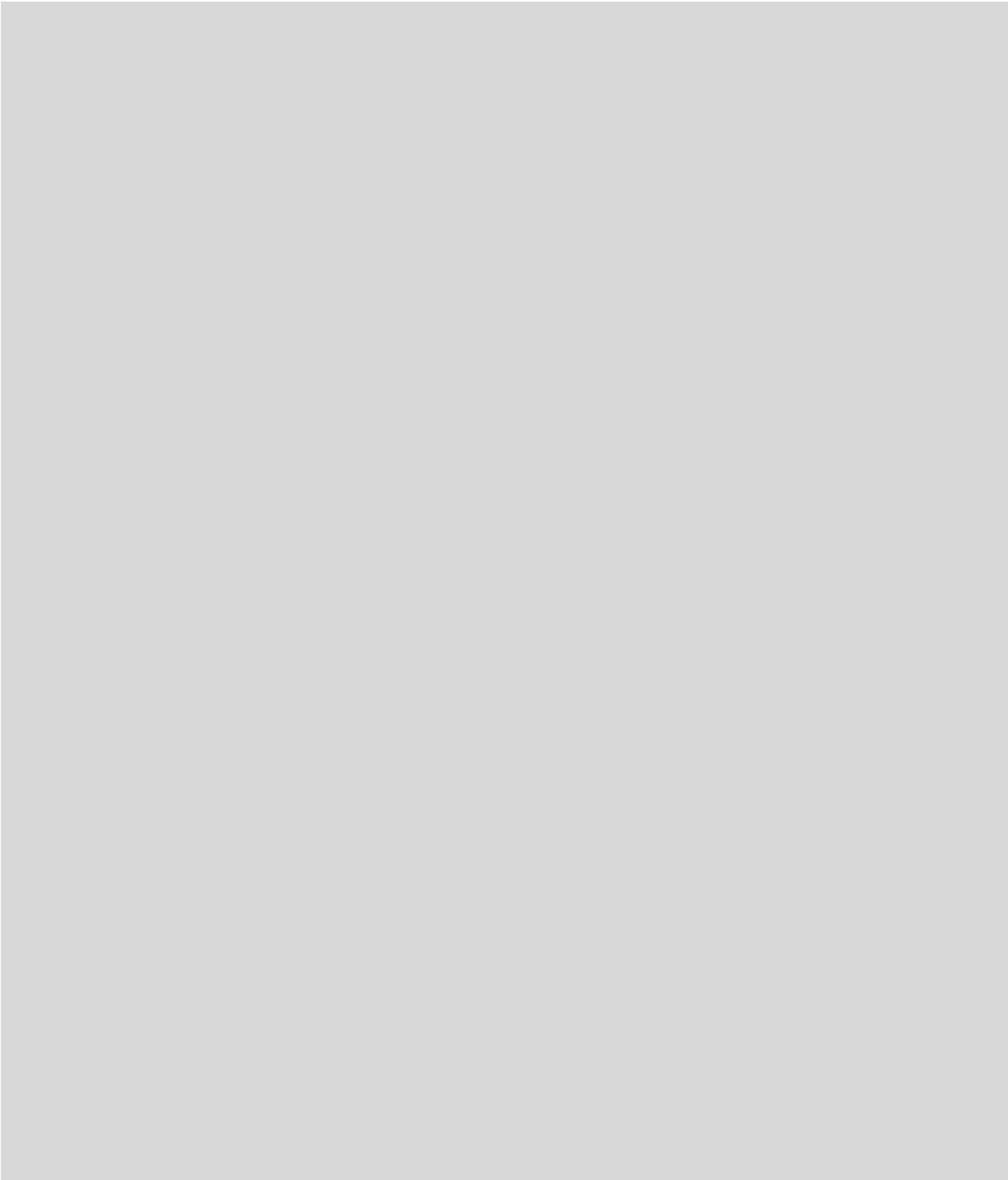
Assessment Position 4
24/06/2026
AP4: Not applicable — no fourth assessment position identified. AP1–AP3 cover the relevant neighbouring habitable room openings potentially affected by the proposed ASHP.
Not applicable
Not applicable
Not applicable
Not applicable

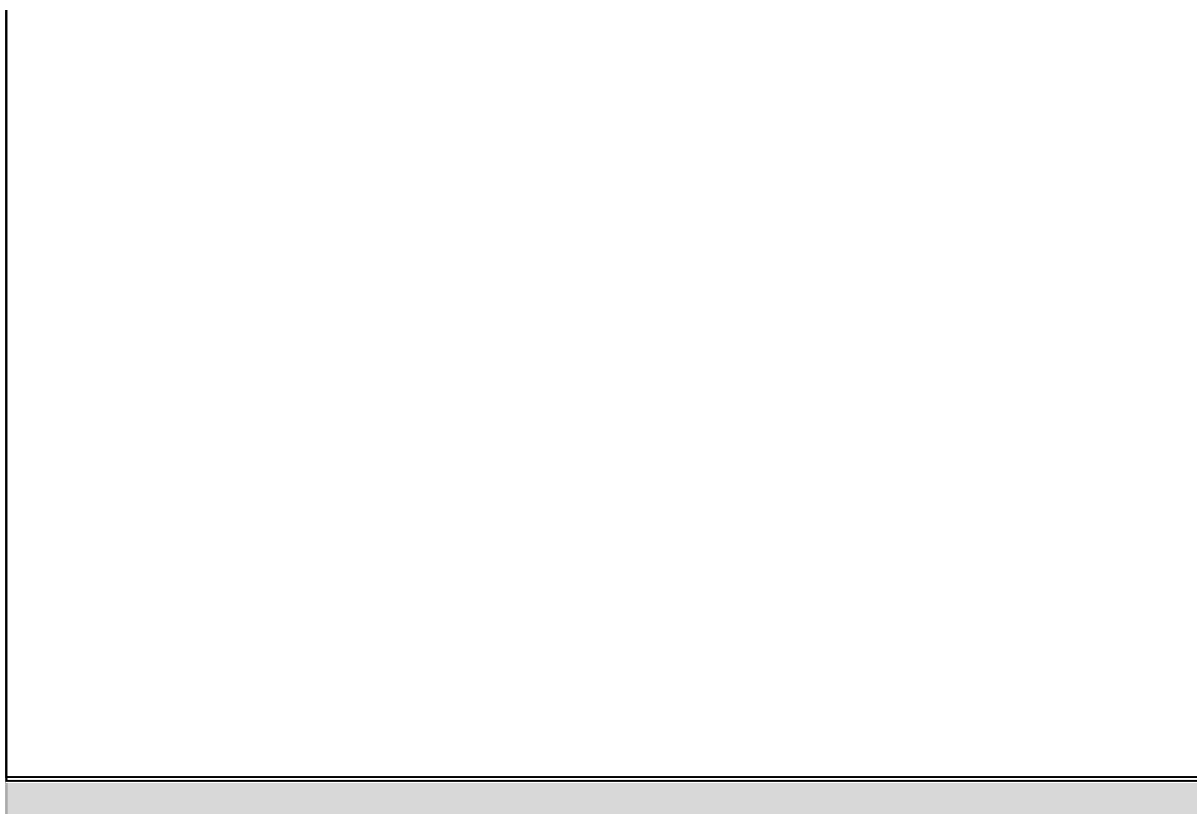








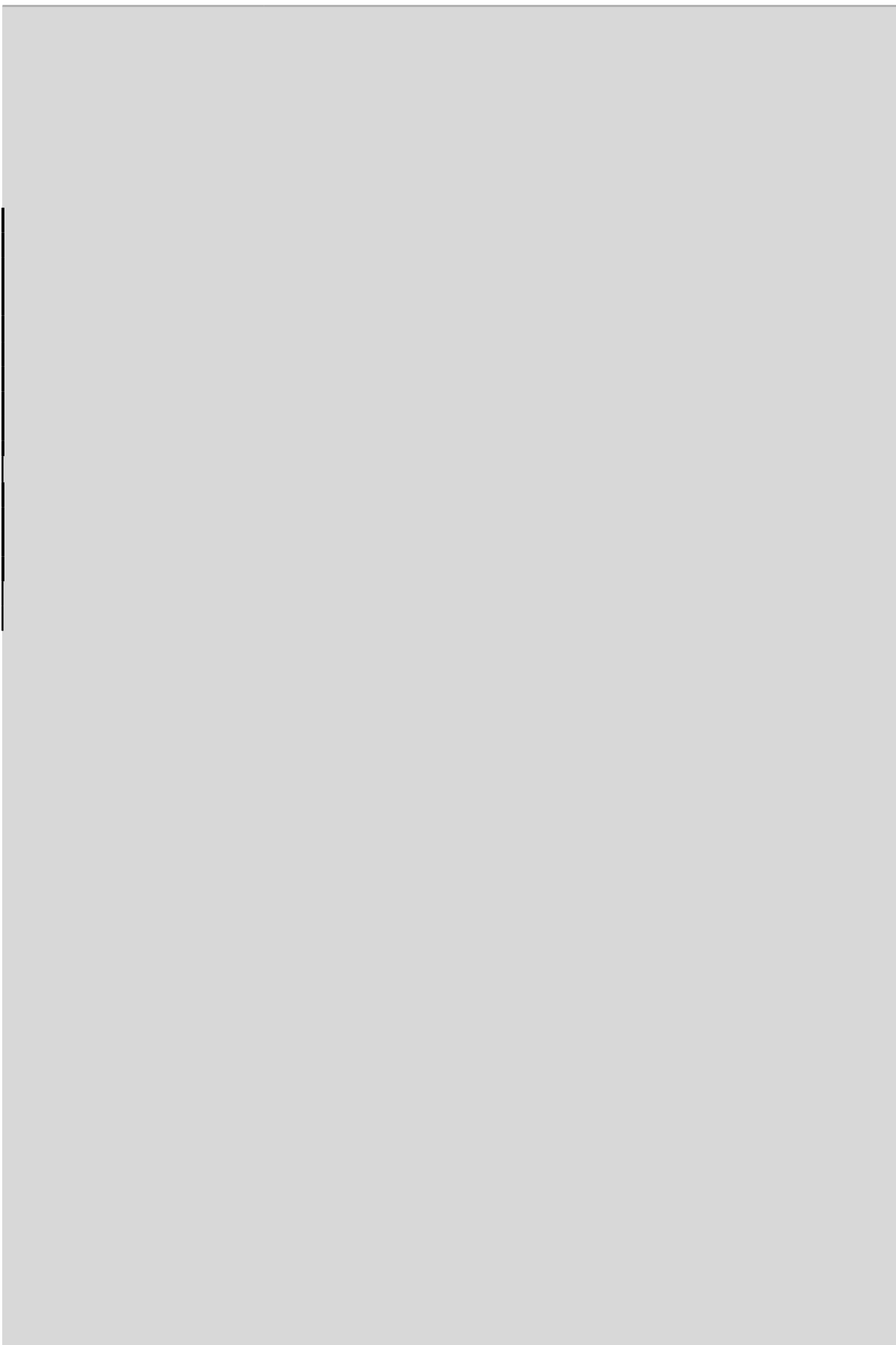


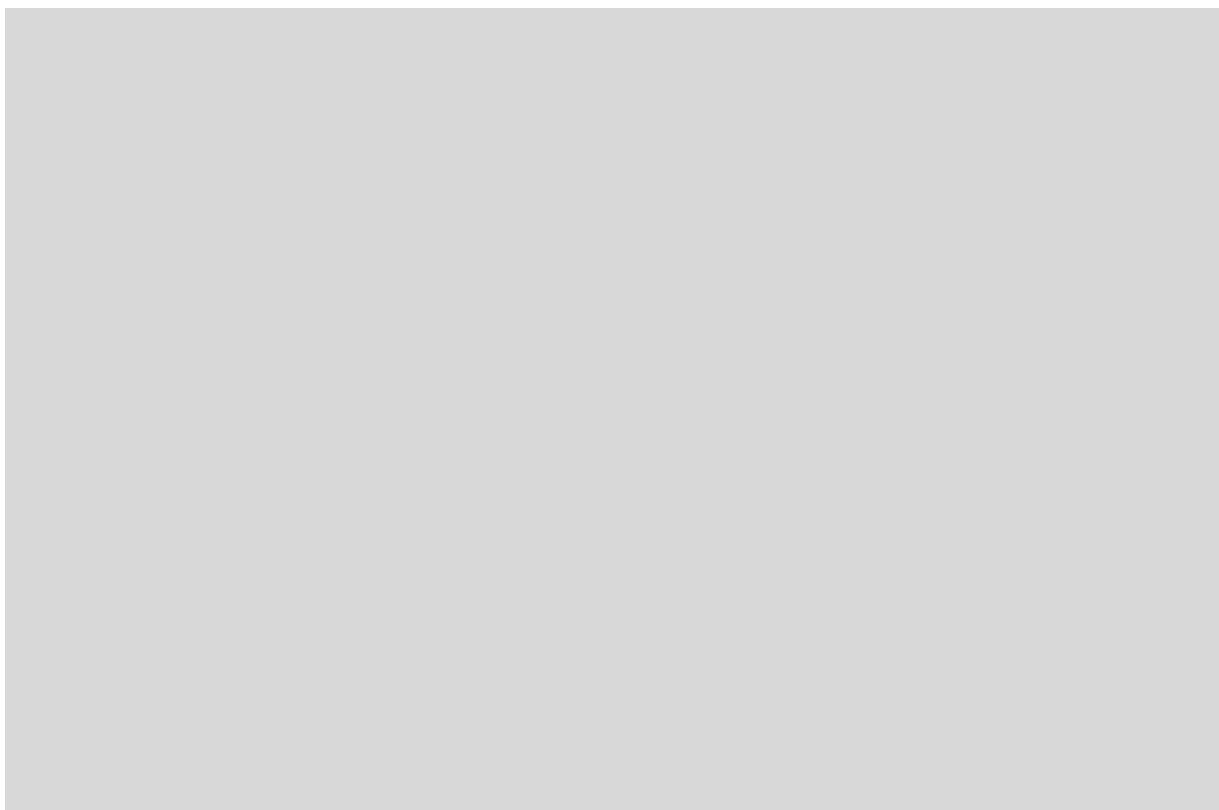


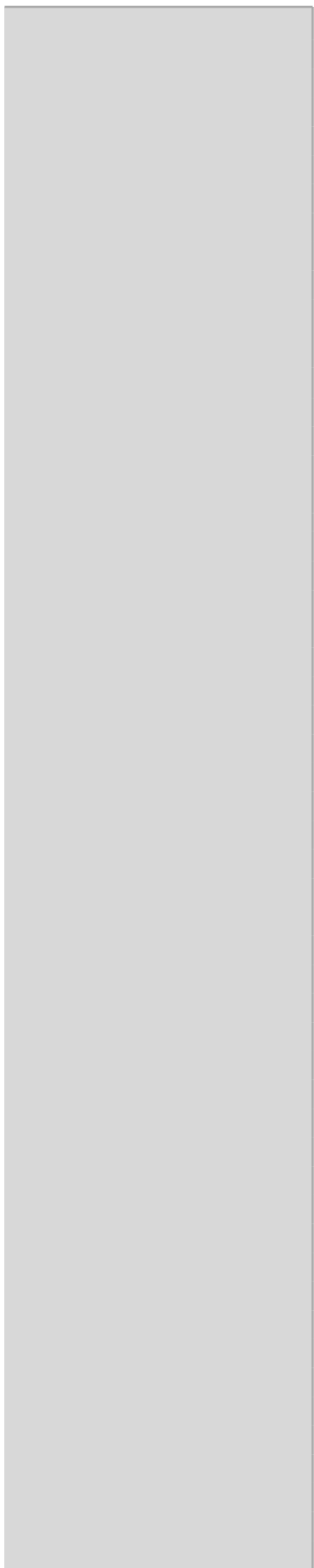


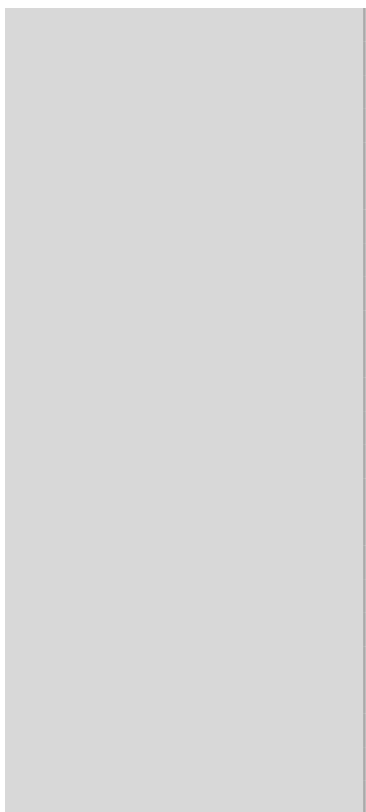
Assessment Position 3	Assessment Position 4
reflective surfaces	one reflective surface
ence (<18mm thick boards)	close board fence (<18mm thick boards)
no view	no view
reflective surfaces	one reflective surface
ence (<18mm thick boards)	close board fence (<18mm thick boards)
no view	no view
Not used	Not used
Not used	Not used

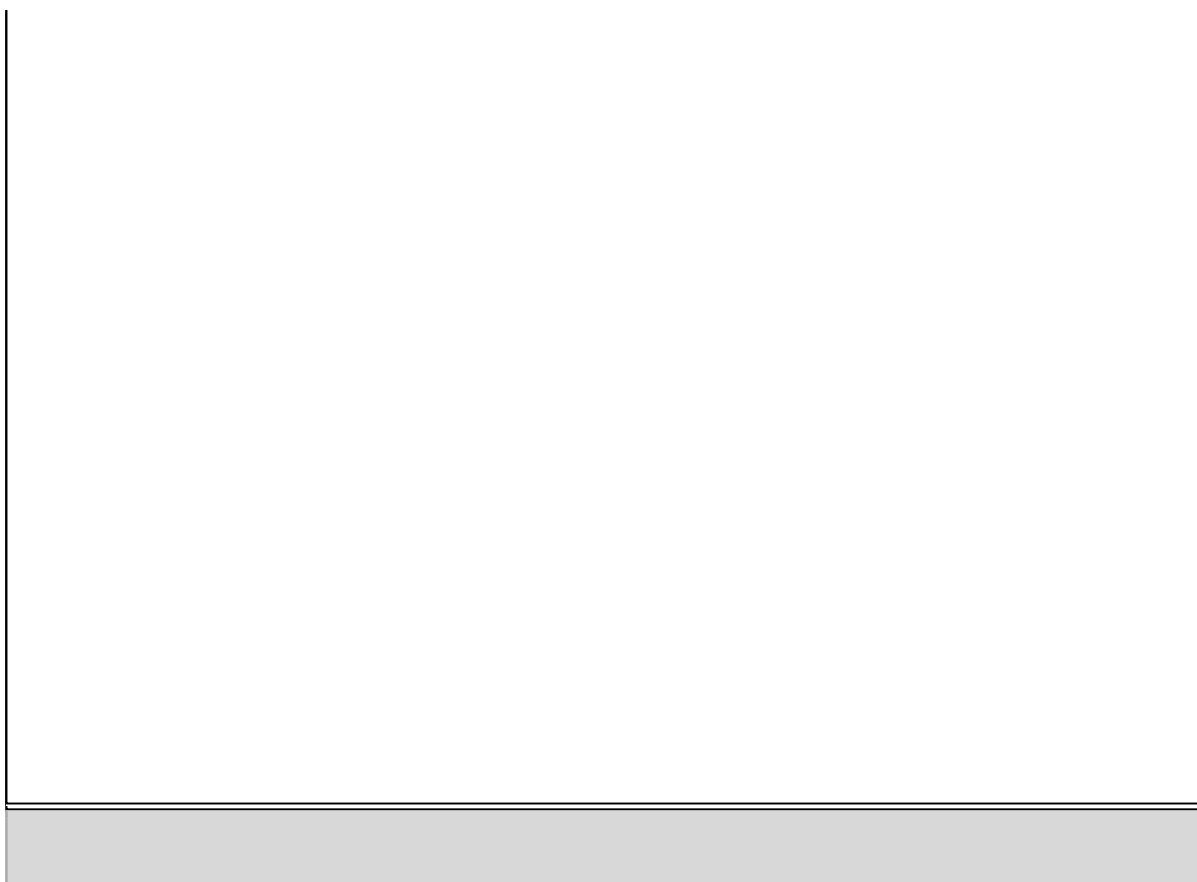










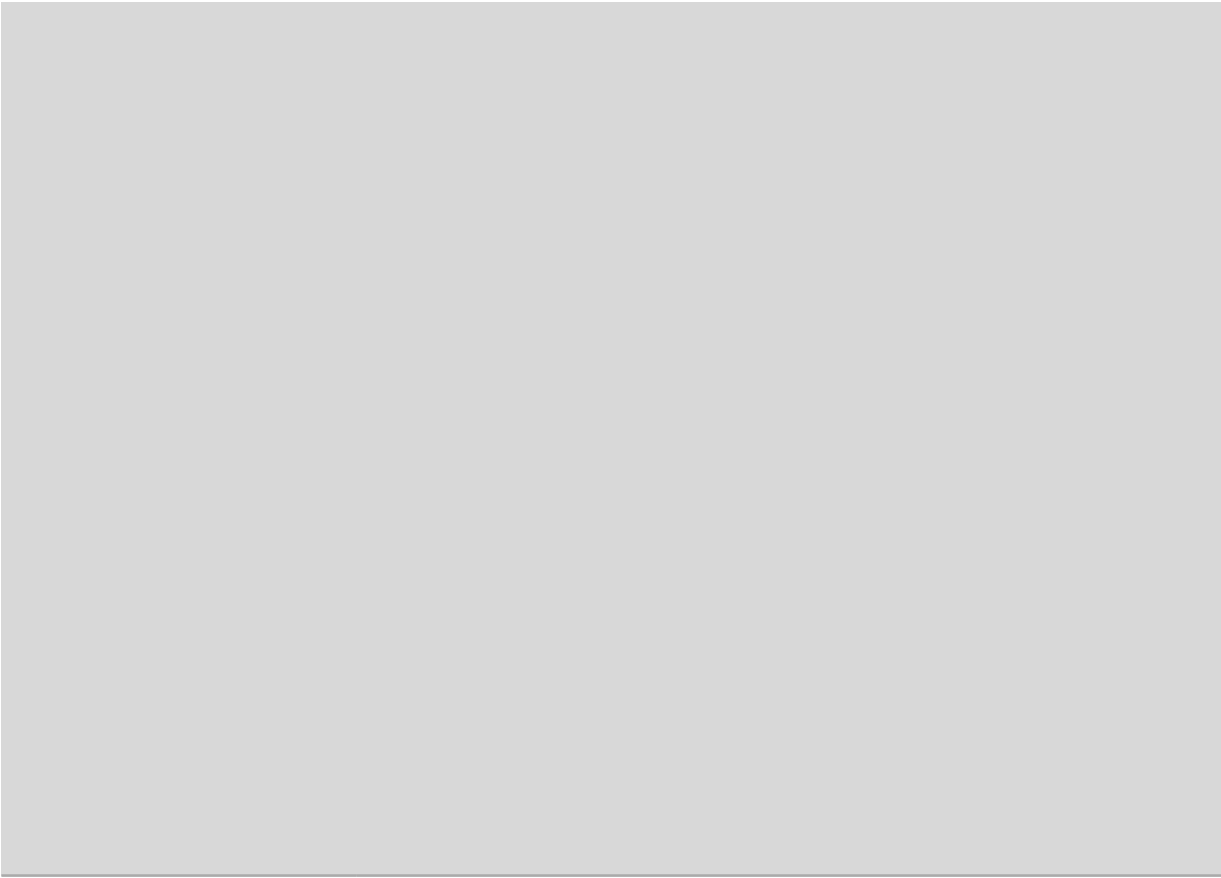


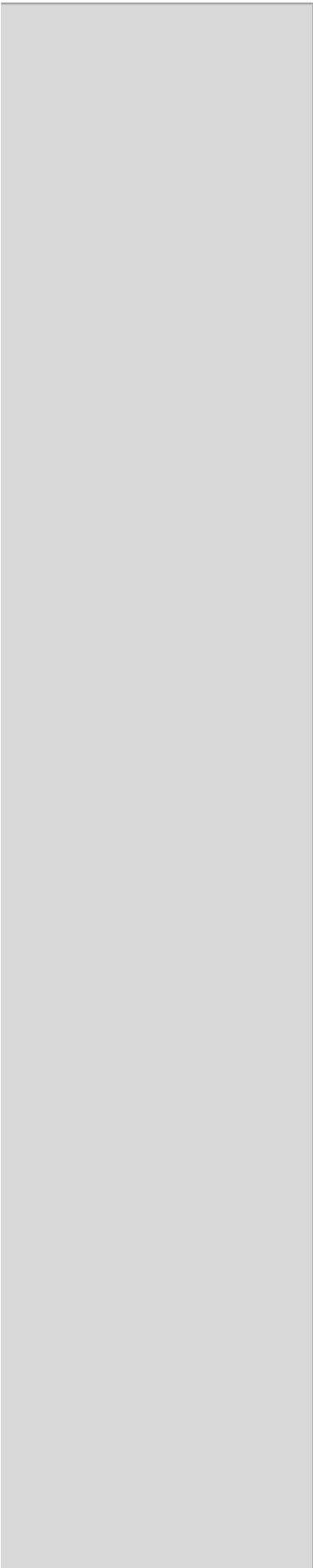


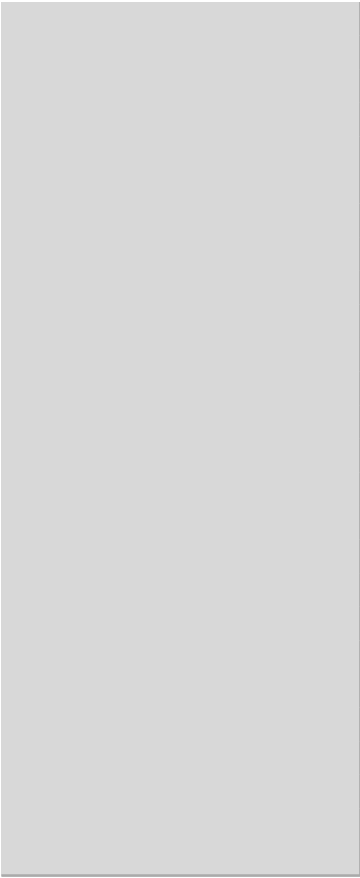
[illegible]

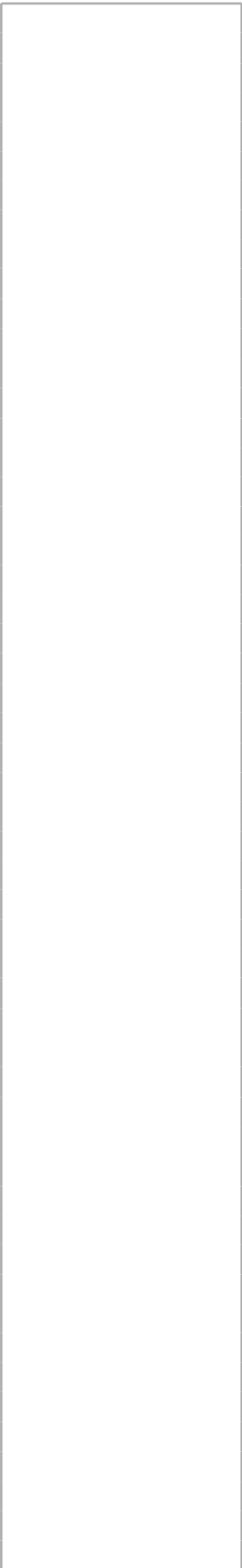


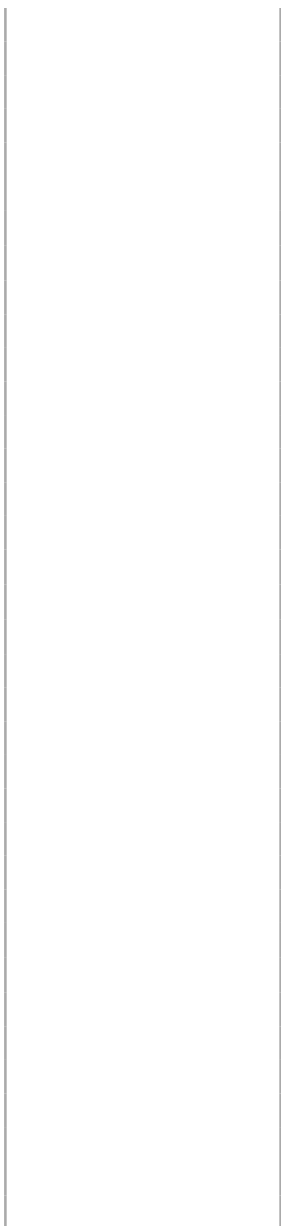












MCS 020(a) final draft assumptions for AS02-R290	
Item	Final draft value used
Heat pump model	Warmflow Zeno AS02-R290
A-weighted sound power level LWA	57 dB(A)
Manufacturer/source note	Warmflow R290 ASHP user manual / product fiche should be checked against current MCS product database
Proposed ASHP location	Rear wall location adjacent to breeze-block boundary wall, as shown in photos/plans
Nearest upper assessment position	AP1 approx. 7.0 m
Lower screened position	AP2 approx. 6.0 m, Type 1 wall, partial view
Directivity Q	two reflective surfaces / Q4
Upper window barrier correction	No barrier / full view / 0 dB
Vegetation	Not used as barrier
Noise limit in calculator	37.0 dB(A) pass/fail threshold
Key result	AP1 = approx. 35.1 dB(A), AP2 = approx. 31.5 dB(A)
Important note	This is a draft for installer checking, not homeowner certification.
Planning submission note	Submit with photos/plan showing assessed position(s) and measurement route.

Rationale / source	Must be confirmed?	
User/planning correspondence and product selection	Yes	
MCS 020(a) requires sound power level, not sound pressure level. 57 dB(A) is used as the AS02-R290 sound power value for the draft.	Yes	
Installer/manufacture should confirm final LWA	Yes	
User does not wish to move the unit from the proposed location	Yes	
Photos indicate nearest upper-floor neighbouring habitable-room opening is set back across rear extension/yard; measured distance required	Yes	
Breeze-block wall may be a solid masonry barrier; included only where line-of-sight is partially screened	Yes	
Draft assumes rear wall plus one adjacent reflective surface. Installer must confirm the ground/side wall arrangement does not require Q8.	Yes	
Conservative for the upper window because it may be visible above the wall; does not rely on vegetation.	Yes	
MCS 020(a) does not allow vegetation as a barrier.	No	
Built into supplied MCS 020(a) workbook	Confirm with planning/EHO	
Both are below 37.0 dB(A), with AP1 below the requested 36.5 dB(A) target margin.	Yes	
Installer should amend any measurement/Q/barrier assumptions before sending to planning.	Yes	
The assessment positions should be clearly identifiable in case of EHO queries.	Recommended	

Installer summary — AS02-R290 MCS 020(a) calculation	
Question	Final draft answer
Sound value used	57 dB(A) sound power level
Main assessment position	Upper neighbouring habitable-room opening approx. 7.0 m away
Directivity	Q4 / two reflective surfaces
Barrier for upper position	None / full view / 0 dB
Lower screened position	6.0 m, solid wall, partial view
Pass/fail	All populated positions pass
Important caveat	If the final installation is judged as Q8 rather than Q4, the upper 7m scenario would be above the limit without a valid barrier correction.

Why it supports approval	Installer action	
Uses MCS-required LWA rather than lower sound-pressure figure	Confirm against Warmflow/MCS product data	
Gives 35.1 dB(A) with Q4/no barrier/full view	Measure centre of ASHP to 1m outside window centre	
Passes at approx. 35.1 dB(A); avoids relying on vegetation/barrier for upper window	Confirm Q4 is technically correct for final mounting	
Conservative and clean; does not rely on wall screening the upstairs window	Confirm line of sight	
Gives approx. 31.5 dB(A) if relevant	Confirm wall qualifies and opening is relevant	
All calculated levels are below 37.0 dB(A)	Amend and submit only when satisfied	
This is the main technical risk.	Installer should explicitly confirm Q4 or adjust the form.	