

784-B028030

23rd February 2022

Response to comments received from Carol Reynolds, Senior Environmental Health Officer at Arun District Council (ADC) regarding the submitted Noise Assessment by Tetra Tech [ref 784-B028030 dated 28th April 2021] for planning application reference LU/206/21/RES.

Tetra Tech Responses in Blue

ADC Comment 1

The figures provided in Tables B1&2, Appendix B show that BS:8233 guidelines cannot be achieved in habitable rooms with windows open. The ProPG states that design layout should be optimised so that habitable rooms are oriented away from sources of adverse noise. I have looked at the layout of sample house types along the road which demonstrate that habitable rooms, including bedrooms in roofs, could be reorientated to face away from the predominant source of noise ie the road. Arun Planning Department may of course consider this unsatisfactory, due to change that this would bring to the 'street scene.'

In this case, mechanical means of acoustically treated artificial ventilation should be provided to all adversely effected houses and flats, so that future occupants will have the option of controlling thermal comfort with the windows closed. Such a system should be based on based on MEV3 or 4 as detailed in the Building Regulations, Approved Document F. Whereas the report mentions that mechanical ventilation may be required, this is excluded from Fig 5, Glazing and Ventilation Strategy which only details proposed glazing and passive ventilation.

Tetra Tech Response 1

Within Section 5.1 of the noise assessment, a ventilation specification of D_{new} 30dB is outlined within Figure 5.1 for a number of facades across the site. In order to provide more detailed analysis of the type of ventilation required and assess thermal comfort, the Acoustic, Ventilation and Overheating Guide (AVOG) 2020 has been consulted. This provides guidance for acoustic assessments for residential developments, providing clarity on the relationship between acoustics, overheating and appropriate ventilation requirements. With regards to overheating, AVOG states that as overheating is a temporary condition, during this period "occupants may accept a trade-off between acoustic and thermal conditions, given that they have some control over their environment," and that occupants may "be more willing to accept higher short-term noise levels in order to achieve better thermal comfort."

The AVOG document identifies that the desirable internal noise standards within Table 4 of BS 8233:2014 should be achieved when providing adequate ventilation as defined by ADF whole dwelling ventilation, but that it is considered reasonable to allow higher levels of internal ambient noise from transport sources when higher rates of ventilation are required in relation to the overheating condition. Although this assessment is at the reserved matters stage rather than outline as AVOG and ProPG are intended, the guidance has been used to provide further comfort to the council that the ventilation strategy is sufficient from a noise perspective. The AVOG provides guidance to produce an initial site risk assessment of noise from transportation sources which are reproduced in Figure 1 below.

Figure 1 – Guidance for Level 1 site risk assessment of noise from transport noise sources relating to overheating condition

Risk category for Level 1 assessment ^[Note 5]	Potential Effect without Mitigation	Recommendation for Level 2 assessment
$L_{Aeq, T}$ (Note 3) during 07:00 - 23:00 $L_{Aeq, 8hr}$ during 23:00 - 07:00 65 dB 60 dB 55 dB 50 dB High Medium Low Negligible 55 dB 50 dB 45 dB	Increasing risk of adverse effect Use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect	Recommended Optional Not required

Note 1 The noise levels suggested assume a steady road traffic noise source but may be adapted for other types of transport. All levels are external free-field noise levels.

Note 2 The values presented in this table should not be regarded as fixed thresholds and reference can also be made to relevant dose-response relationships,^[15, 17].

Note 3 A decision must be made regarding the appropriate averaging period to use. The averaging period should reflect the nature of the noise source, the occupancy profile and times at which overheating might be likely to occur. Further guidance can be found within the 2014 IEMA Guidelines^[23].

Note 4 Refer also to references^[1, 17, 18, 22] for further guidance regarding individual noise events. Where 78dB LAFmax is normally exceeded during the night-time period (23:00-07:00), a Level 2 assessment is recommended.

Note 5 The risk of an adverse effect occurring will also depend on how frequently and for what duration the overheating condition occurs. Refer to Figure 3-2.

Note 6 To evaluate the risk category for a dwelling, all three aspects of external noise exposure (i.e. daytime, night-time and individual noise events) should be evaluated. The highest risk category for any of the three aspects applies.

To illustrate this risk identified by the AVOG across the site, noise contour plots for daytime and night-time L_{Aeq} noise levels are presented in Figure 2 and 3 below, which highlight the risk from Negligible through to High, identified in Figure 1 above.

Figure 2 AVOG Daytime Risk Contour Plot (Grid Height: 1.5m)



As shown above, the majority of living room spaces and south-facing facades across the site fall within the Negligible to Low-risk category as defined within the AVOG and therefore as shown within Figure 1 the 'use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect.' Additionally, although not required under the AVOG, acoustic trickle vents are to be installed on a number of living room facades as identified within the noise technical report and combined with the option to open windows, dwellings will be suitable for both thermal and acoustic comfort. Facades exposed to the link road fall just within the Medium Risk category in accordance with the AVOG, however given the predicted levels across the site and given a majority of facades are not south-facing, acoustic trickle vents are considered to be a suitable means of ventilation for these facades.

Figure 3 **AVOG Night-time Risk Contour Plot (Grid Height: 4.0m)**


As shown above, nearly all bedroom spaces and south facing facades across the site fall within the Negligible to Low risk categories in accordance with the AVOG and therefore as detailed within Figure 1, the ‘use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect.’ Additionally, although not required under the AVOG, acoustic trickle vents are to be installed on a number of living room facades as identified within the noise technical report and combined with the option to open windows, dwellings will be suitable for both thermal and acoustic comfort. Facades exposed to the link road fall just within the Medium Risk category in accordance with the AVOG, however given the predicted levels across the site and given a majority of facades are not south-facing, acoustic trickle vents are considered to be a suitable means of ventilation for these facades.

An example of acoustic trickle vents which achieve the minimum specification of D_{new} 30dB are Titen’s SF Xtra Sound Attenuator Vent where details are presented in Appendix A.

The ventilation strategy outlined here is considered to meet the requirements of BS 8233, and the ventilation requirements outlined in the AVOG.

ADC Comment 2

Please could the applicant use acoustic archives to assess the number of times and degree to which the criterion of not more than 10 to 15 events greater than 45dBL_{A,f,max} is likely to be exceeded in bedrooms during night-time hours in accordance with the ProPG and BS8233 guidelines. Arun EH aim for not more than 12 events of greater than 45dBL_{A, f, max}, 5 mins, per night inside bedrooms. Closer definition may be required.

Tetra Tech Response 2

Given the road is proposed as part of the development, measured levels were not able to be undertaken. As detailed within the noise technical report, noise levels have been calculated from road traffic data provided for the link road and as such analysis of historic L_{Amax} events is not possible. However, it is considered that the mitigation measures outlined within the noise report for the L_{Aeq} scenario would address the majority of peak (L_{Amax}) noise levels from road traffic noise excluding 12 events per night inside bedrooms.

ADC Comment 3

I understand that some modification of house types is intended along the link road, for example possibly plots 102, 103 and 106. Any updated report will of course, need to take this into consideration.

Tetra Tech Response 3

Although the overall findings of the submitted noise assessment are considered unlikely to change significantly, an updated assessment could be undertaken to account for further to changes to the layout.

ADC Comment 4

I would be obliged if you would explain why a correction of -3.7dB has been made to the night-time noise levels.

Tetra Tech Response 4

As the traffic flow data for the link road is provided in 18hr format, a correction has been applied to convert the predicted L_{A10,18hr} traffic flow data to L_{Aeq,8hr} noise levels for the purposes of the night-time assessment. The correction is referenced within 'converting the UK traffic noise index L_{A10,18hr} to EU noise indices for noise mapping' by TRL Limited.

End of Document

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Appendix A – Manufacturer’s details for Titon SF Xtra Sound Attenuator Vent

SF Xtra Sound Attenuator Vent

Surface mounted noise reducing ventilator



SF Xtra Sound Attenuator internal

Suitable for:

PVCu



ALUMINIUM



TIMBER



The SF Xtra Sound Attenuator ventilator is a slot ventilator which provides high levels of sound attenuation compared to similar 'acoustic' products, in a compact size.

The SF Xtra Sound Attenuator can be purchased in a number of combinations based on different sizes of inner (ventilator) and outer (canopy). Combinations can be chosen depending on the sound attenuation requirement and can achieve up to $D_{n,e,w}$ (C;Ctr) = 44 (-2;-3)dB when the vent is open.

The product is a cost effective method of reducing incoming noise in situations where conventional slot ventilators are unable to assist with acoustic issues.

The SF Xtra Sound Attenuator comes fitted with a Titon SF Xtra Ventilator and/or SF Canopy (HF Canopy for 5000EA version) and fits the 2500mm² EA version over the Trimvent® Select, Trimvent® 4000 Hi Lift or Select Xtra slot size.



SF Canopy version



SF Sound Attenuator Canopy external

Features and Benefits

- Cost effective sound attenuating ventilator
- Independently tested by Sound Research Laboratories in accordance with BSEN20140-10:1992, ISO140-10:1991
- 2500mm² EA and 5000mm² EA versions available
- Vent sizes available: V25, V50, V75 and canopy sizes: C25, C50 and C75
- Can provide up to 44 $D_{n,e,w}$ attenuation, depending on combination
- Suitable for use in domestic or non-domestic installations
- Ideal for retrofit applications, over an existing slot
- Available in a range of combinations to suit different acoustic specifications
- Fits over a Trimvent® Select, Trimvent® 4000 Hi Lift or Trimvent® Select Xtra slot size
- Supplied with SF Xtra Ventilator and/or SF Canopy fitted (HF Canopy for 5000EA version)
- High performance gasket combined with compression closing action improves sealing in adverse conditions
- Can be mounted to deflect air upwards or downwards
- For use over a 13mm slot
- Special paint finishes available

Product	Product Code	(L) Length	(W) Width	(P) Projection Closed-Open	Free Area (mm ²)	Slot Detail
SF Xtra 2500EA Vent only	TA5220	425	28	10-24	4207	
SF 418 Canopy only	TA5005	418	23	27	5114	
SF Xtra Sound Attenuator 2500EA Vent 25mm	TA5221	464	35	37-51	3470	
SF Sound Attenuator 2500EA Canopy 25mm	TA5202	464	35	54	3470	
SF Xtra Sound Attenuator 2500EA Vent 50mm	TA5223	464	35	62-76	3470	
SF Sound Attenuator 2500EA Canopy 50mm	TA5204	464	35	79	3470	
SF Xtra Sound Attenuator 2500EA Vent 75mm	TA5225	464	35	87-101	3470	
SF Sound Attenuator 2500EA Canopy 75mm	TA5206	464	35	104	3470	
SF Xtra Sound Attenuator 5000EA Vent 75mm	TA5235	523	35	87-101	5517	
HF Sound Attenuator 5000EA Canopy 75mm	TA5236	523	35	113.5	5517	

Acoustic Ratings

Product	Open	Closed	EA (mm ²)
TA5225 + TA5206 (2500EA)	$D_{n,e,w}(C;Ctr) = 44 (-2;-3)$ dB	$D_{n,e,w}(C;Ctr) = 55 (-1;-5)$ dB	2500
TA5225 + TA5204 (2500EA)	$D_{n,e,w}(C;Ctr) = 42 (-1;-2)$ dB	$D_{n,e,w}(C;Ctr) = 55 (-2;-5)$ dB	2500
TA5225 + TA5005 (2500EA)	$D_{n,e,w}(C;Ctr) = 40 (-1;-2)$ dB	$D_{n,e,w}(C;Ctr) = 53 (-1;-4)$ dB	2500
TA5223 + TA5202 (2500EA)	$D_{n,e,w}(C;Ctr) = 39 (-1;-2)$ dB	$D_{n,e,w}(C;Ctr) = 55 (-2;-5)$ dB	2500
TA5223 + TA5005 (2500EA)	$D_{n,e,w}(C;Ctr) = 38 (-1;-2)$ dB	$D_{n,e,w}(C;Ctr) = 55 (-2;-5)$ dB	2500
TA5221 + TA5202 (2500EA)	$D_{n,e,w}(C;Ctr) = 36 (0;-2)$ dB	$D_{n,e,w}(C;Ctr) = 55 (-1;-5)$ dB	2500
TA5221 + TA5005 (2500EA)	$D_{n,e,w}(C;Ctr) = 35 (0;-1)$ dB	$D_{n,e,w}(C;Ctr) = 54 (-1;-4)$ dB	2500
TA5220 + TA5202 (2500EA)	$D_{n,e,w}(C;Ctr) = 35 (0;-1)$ dB	$D_{n,e,w}(C;Ctr) = 55 (1;-5)$ dB	2500
TA5220 + TA5005 (2500EA)	$D_{n,e,w}(C;Ctr) = 32 (1;0)$ dB	$D_{n,e,w}(C;Ctr) = 52 (-2;-4)$ dB	2500
TA5235 + TA5236 (5000EA)	$D_{n,e,w}(C;Ctr) = 40 (-2;-3)$ dB	$D_{n,e,w}(C;Ctr) = 51 (-1;-4)$ dB	5000

Manufactured from

Aluminium 6063A T6, component parts POM

Recommended screws

4mm (No.8) Round Head or equivalent

When fitting to PVCu screw must go through two walls or into reinforcement

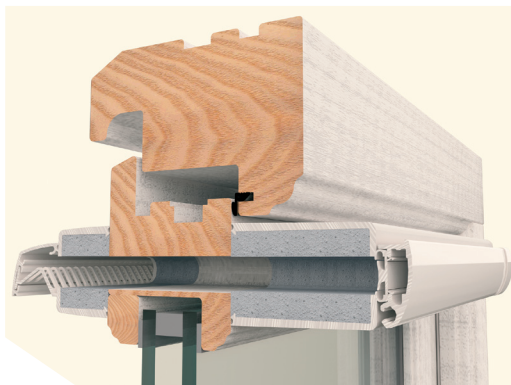
Standards

Tested in accordance with BS EN 13141-1:2004 (airflow air leakage and weather tightness)

Finishes

Suffix product code with -20 (white)

Other colour options available. Please contact sales for details.



Through sash

Performance

(Full details available on request)

Equivalent Area – See above

Free Area – See above

Air Leakage – 0.11m³/hr @ 50Pa (Vent and Canopy only)

Water Resistance (Pa) – 750Pa

Acoustic $D_{n,e,w}$ – see above

NB: For optimum performance the ventilator should be installed on a flat surface free from defects, and sealant should be used along all edges to achieve the desired acoustic result.

More information

enquiries@titon.com / 01206 713801

