Client: A T Architects
Kingsley House
63 Holly Walk
Leamington Spa
Warwickshire
CV32 4JG

Site: 35-37 The Parade
Leamington Spa
Warwickshire
CV32 4JG

Date: 25th January 2021

Project: Convert the upper floors (1st to 3rd) of the commercial building into 2 x residential dwellings.

Written by Mr. Michael D Vine ~ BSc Hons, MIOA

Addendum Document to Noise Impact Assessment 18044 – proposals for either 2 or 6 dwellings at upper floors.

The above-named report was submitted to the local authority and they have responded by the following comments.

The applicant has submitted a noise assessment report prepared by Airtight & Noisecheck Ltd (dated 9-10th September 2020, Ref. 18044). The noise report has considered the existing environmental noise levels at the front (west) and rear (east) facades to determine whether the proposed dwellings would be able to achieve the acoustic guidelines recommended by BS8233: 2014 and the WHO guidelines for community noise (1999). The noise measurements were completed over the course of two days on 9th and 10th September 2020. Having reviewed the sound level data, it appears that the noise measurements are significantly lower than previous assessments completed for other developments on and around The Parade, Leamington Spa. This is not unexpected as The Parade and sections of Warwick Street were closed on 15th June 2020 to allow social distancing during the Covid-19 pandemic. The Parade remains open for commercial deliveries and collections, however, it is still closed to private vehicles and buses. As the sound measurements were taken during the current pandemic, it is also likely that pedestrian footfall was significantly reduced and street noise arising from the night time economy was minimal. The assessor has applied a +5dB penalty to the measured sound levels on the Parade to account for the road closure and reduction in traffic flows to derive a day and night time LAeq of 58dB(A). It is unclear how the addition of +5dB was determined and what information this was based on as this has not been provided in the report. Even with a +5dB penalty, the provided noise levels are still below previously measured levels on the Parade. A search of recent planning applications (W/20/1240, W/19/0963, W/16/1165, and W/16/0922) found that noise levels on the Parade prior to Covid-19 ranged from 62 to 69dB LAeq,16 hour during the day time and between 58 and 64dB LAeq,8 hour during the night time. These previous noise assessments were completed at various locations along The Parade and obtained relatively consistent sound levels. On this basis we believe that the measured sound levels provided within the applicant's noise assessment report underestimate the typical noise levels observed on The Parade under normal circumstances (pre-Covid-19). As a

result, we do not believe that the proposed mitigation measures contained within the report will ensure that the internal noise guidelines recommended by BS8233:2014 and the WHO guidelines for community noise (1999) are achieved. For this reason we must make a holding objection.

Response:

It is accepted that the assessment was undertaken during a time when restrictions were in place at the site address, and that possible increases in noise exposure would be possible when the restrictions were lifted. The addition of the +5dB was done under the assumption of a line source equation.

The LPA also state that previous reports have been undertaken and measured levels between 62-69dBA $L_{Aeq\ 16hour}$ and between 58-64dBA $L_{Aeq\ 8hour}$. Using these figures, the required levels of sound reduction would be between 27-34dB for the day time and between 28-34dB for the night time.

The report includes noise mitigation measures that would achieve this level of attenuation. It includes robust glazing specifications and a suitable ventilation system that would not diminish the integrity of the glazing. These details are shown below.

Possible Units	Thickness	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	Overall reduction
SG Solaglass 6-20-10	36mm	26	30	35	39	35	44	37-2=35dB
Pilkington's 6-100-4	110mm	26	34	44	56	53	52	45-7 = 38dB

The above table shows suitable glazing options that will achieve the levels of reductions listed by the LPA. It is very clear that the noise levels will vary throughout the year and as such it is evident that the residents should be able to open their windows at certain times of the day and night.

These windows can be installed to the entire scheme. The final option shown above is a secondary glazed system that will maintain the integrity of the current façade and can be installed without having to remove any current windows, this also offers a higher level of sound reduction.

In addition to the above, the report also includes suitable ventilation options for the scheme that will ensure the dwellings can be ventilated without diminishing the integrity of the glazing. Again, these elements could be installed to all facades of the building.

Make	Model	Type
Vent-Axia	Sentinel Kinetic Plus	Whole House Ventilation

Product	Sound Reduction - Open	Sound Reduction - Closed
Simon Acoustic EHAS	38dB	41dB

All of the above are suitable mitigation measures that would not only ensure the requirements of the Noise Impact Assessment undertaken are achieved but also the requirements of the other assessment levels listed by the LPA.

If these mitigation measures are applied, along with the other robust measures within the report then the requirements of BS8233: 2014 should be achieved for the future residents of the scheme.

The noise report has also considered the impacts of commercial plant noise at the rear of the premises (east façade) on the proposed dwellings. The noise report makes reference to extraction noise from plant installed at the rear of the property, however, limited information has been provided about the character of noise and what premises/processes this serves e.g. does the plant serve a catering unit or other commercial emission sources that could have an adverse health or odour impact on the proposed development? Having reviewed aerial photographs of the site, it appears that there are a number of air conditioning units located on various commercial premises at the rear of the site. The noise report is not clear on what plant is present at the rear of the property and which have been assessed. Similar to the above, the measured noise levels appear to be lower than previous noise assessments completed in the surrounding area (W/16/1416) which may be attributed to the reduced pedestrian footfall and nearby road closures. The noise assessment has applied a +3dB correction to the plant noise for intermittency, however, this type of correction is normally reserved for assessments of commercial noise carried out under BS4142:2014+A1:2019 rather than for the purposes of BS8233:2014. The BS4142:2014+A1:2019 standard is the preferred method for assessing the impact of commercial plant on residential dwellings, however, reference to absolute sound levels in accordance with BS8233:2014 can sometimes be used for context purposes. On this basis we would recommend that both assessment methodologies are used in order to determine the potential noise impacts on future occupiers of the proposed dwellings. In the absence of a clearly defined assessment of commercial plant and the underestimation of current noise levels, we must make a holding objection.

Response:

The plant that was operating was on the ground floor flat roof at the rear of the building. It was unclear as to what building the plant was serving as there are numerous pieces in operation. The levels were measured at the residential façade for the 24hour period.

There were no distinguishing bangs to the noise and it didn't appear to be a dominant noise source, hence the reason for a full BS4142+A1 assessment being undertaken. It is accepted that the +3dB for intermittency is part of a BS4142 assessment but this was included to try and determine the absolute levels of noise associated with the rear facades.

Again, the levels of mitigation included in the report (minimum glazing is 35dBA) will ensure the noise levels to the rear are mitigated accordingly, even if they do increase at other parts of the year. The front façade of the development will be the louder façade and therefore if the same levels of mitigation is applied to the rear facade then the internal levels will definitely be achieved. Also, as the rear façade will decrease in noise levels throughout the year it is clear that the future residents will be able to open their windows at different times of the day time and night time.

Looking at the values included in the report it seems clear that the noise is not distinctive as the levels keep changing throughout the day time. However, there does seem to be a reduction in the noise levels at circa 1800hrs and therefore it is clear that the plant is not in operation during the night time period (another reason to justify that the commercial noise was not the dominant noise). Even the day time levels when the plant appeared in operation the noise levels were not very high and as such people should be able to open windows.

BS4142 should not be used to determine the internal noise levels and thus should not be included when designing a suitable façade design, it should rather be used to identify of the noise will cause an adverse impact on noise sensitive schemes. In addition, no mitigation measures will be able to be installed to the plant itself as the client will have no control over the plant itself and therefore will need to apply the mitigation measures to the building elements.

The below paragraph has been taken from the ANC technical note relating to BS4142+A1

However, the note to Subclause 8.5 states ***'Where a new noise-sensitive receptor is introduced and there is extant industrial and/or commercial sound, it ought to be recognized that the industrial and/or commercial sound forms a component of the acoustic environment. In such circumstances other guidance and criteria in addition to or alternative to this standard can also inform the appropriateness of both introducing a new noise-sensitive receptor and the extent of required noise mitigation.'***

All of the above indicates that whilst BS4142 should not be used predominantly to assess internal noise levels, it should be considered and applied where necessary, which it was in the original assessment. As stated in the correspondence from the LPA the absolute value has been achieved using this method.

During the attended part of the assessment the noise produced from the plant was not tonal, impulsive or distinctive, so no further acoustic feature corrections were applied to the measured values. It must also be reiterated that the plant does not seem to be in operation during the night time period and therefore these values will not apply to the night time period. There may be other plant in operation during the night time period, but this would have been assessed during the 24hour measurement period and therefore been included in the overall level for the night time period. Using the measured values, it is clear that windows should be opened during the night time period without causing sleep disturbance based on the measured levels.

It is hard to use a BS4142 assessment for internal noise levels, hence the reason BS8233 was used.
If the values are compared to the BS4142 guidelines, then the following can be assumed:

Results		***Commentary***
Ambient Sound Level	Sound Pressure Level = 48-50dBA	Measured at facade – looking at data these values are accurate
Residual Sound Level	43dBA	Measured later in evening. Drops to 39dBA later on
Specific Sound Level	46-49dB	
Acoustic Feature Corrections	+3dB for intermittent noise	BS4142: 2014 section 9.2
Reductions due to distance & barrier		
Rating Level	49-52dBA	Calculation based on above
Background Sound level	36dBA	Measured at proposed location – day time as not in op at night
Excess of rating over background	+13 to 16dB	
Assessment indicates impact at receptor		If using external noise sources and no further mitigation the noise could be deemed as adverse

The above table shows the possible increase over the LA90 value (when the source is off) that may be apparent when the plant is running. This would be a typical scenario using any plant once it is switched off.

For reasons listed above BS4142+A1 can't be used in isolation for an internal assessment, but for robustness you can compare the final rating level of the plant (52dBA) to the recommended internal guideline noise levels (30dBA). In addition, if the highest 15minute for the daytime value is used (53dBA) +3 = 56dBA which offers a sound reduction of 26dBA to meet the recommended night time values.

This level of sound reduction will also be achieved by the recommended measures included within the reports. The mitigation measures have a minimum reduction of 35dBA so this will easily achieve the values with windows closed. The ventilation schemes will ensure the dwellings can be ventilated without diminishing the integrity of the glazing and also there will be periods whereby the residents will b able to open their windows to naturally ventilate the dwellings. This will obviously increase the internal noise levels, but it is essential to strike a balance between the noise levels and overheating. It is assumed tat the

windows on the rear elevations could be opened for periods of the day time and long periods of the night time.

It is accepted that the noise levels may vary from time to time and that these may be higher at certain times of the year. But the mitigation measures included in the reports actually exceeded the requirements of the reports and the values listed by the LPA in their response and thus these measures (or similar) should ensure a suitable acoustic environment in the future at the proposed site, with a balance between noise and overheating being struck as appropriate by the future residents of the dwellings.