Written summary of oral submissions made at Issue Specific Hearing 8 on behalf of Marathon Asset Management MCAP Global Finance (UK) LLP

1 INTRODUCTION

1.1 This document summarises the submissions advanced by Marathon Asset Management MCAP Global Finance (UK) ("**Marathon**") at Issue Specific Hearing 8 on 19 June 2024.

1.2 The main items for discussion were concerns over the lack of progress since the previous hearings and the inadequacy of the Applicant's proposed noise mitigation solutions.

1.3 The hearing opened at 10am at the Sandman Signature London Gatwick Hotel, and closed at 1:30pm.

2 ATTENDEES ON BEHALF OF MARATHON

2.1 Daisy Noble, counsel instructed by Bryan Cave Leighton Paisner LLP ("**BCLP**"), appeared on behalf of Marathon.

2.2 Eleanor Girdziusz (Stantec UK Building Acoustic Lead) also made submissions on behalf of Marathon.

3 SUMMARY OF SUBMISSIONS

Agenda Item	Summary of oral submission
6.2	**LACK OF PROGRESS WITH NEGOTIATIONS - DELAYS BY THE APPLICANT** 1. The Examining Authority ("**ExA**") will be aware from our written representations and appearances at previous hearings that Marathon has been seeking to work with the Applicant in respect of a range of matters relating to the potentially substantial impact of the proposals on the Holiday Inn. 2. As set out in the recent letter from BCLP submitted at Deadline 5, Marathon has become concerned at the speed of progress on these matters [REP5-124]. In particular, there have been significant delays by the Applicant in providing the technical drawings promised for the temporary alternative hotel access road; a delay of over 5 weeks in returning comments on the HoTs (provided to GAL on 9th May and returned on 16th June) and a general lack of progress towards agreement on mitigation proposals, which is not considered to be acceptable. 3. Over the past week, there has been some progress between the parties, which is welcomed, but time is rapidly running out within which to reach a satisfactory resolution to the issues raised before the end of the examination. Whilst Marathon remains committed to working towards an agreed position with the Applicant, concrete and effective proposals to mitigate the effects on the Holiday Inn have not been forthcoming and there is still a long way to go. This puts Marathon in a very difficult position and it is only through incurring significant costs that Marathon is able to continue pressing for meaningful progress to be made. This could, of course, have been avoided through early and meaningful engagement by GAL on issues such as noise at a much earlier stage in the DCO process.

4. Given where we are, there is a plainly a risk that, if satisfactory progress is not made by the time identified for further compulsory acquisition hearings ("**CAH**") in late July, Marathon will be left with no alternative to move to a position of objection in respect of the proposals and seek exclusion of its interests from the DCO and/or protective provisions. We hope, therefore, that the progress of the past week can be sustained but at the moment the prospect of this happening is looking likely. **Given the current position, Marathon at this stage request that the ExA schedule a further CAH to take place during the week currently allocated (week commencing 29th July 2024).**

5. The status of the negotiations in respect of noise, which are summarised below, is illustrative of the issues currently faced.

INADEQUACY OF PROPOSED NOISE MITIGATION SOLUTIONS

1. There are a range of matters that remain in disagreement between ourselves and the Applicant, as detailed further below and in the documents provided alongside this post-hearing submission. In particular, see the Appendix 2 – Stantec's Response to GAL Holiday Inn Noise Report and Appendix 3 - Stantec Construction Noise Impact Report.

2. Since the previous CAH, the Applicant has carried out sound insulation testing at the hotel, the results of which have informed the Applicant's proposed noise mitigation strategy.

3. The Applicant has now accepted that there will be some construction noise impacts at the hotel requiring mitigation but there is still disagreement over the extent of the impacts and critically, what form of mitigation is required. In the Applicant's report submitted at Deadline 5 (Examination Doc Library reference REP5-082), they have suggested two mitigation options as follows:

(a) using a limited number of guestrooms only (i.e. those facing the hotel car park to the rear of the hotel rather than the A217) for cabin crew members, who require appropriate sleeping conditions both at night and during the day (as explained in Marathon's written representations (REP1-222); and

(b) closing the trickle vents on the façades of the hotel as a way to reduce internal noise levels.

4. We have reviewed these suggested mitigation measures and find them to be woefully inadequate and impractical for the following reasons. We expand on our concerns below.

(a) Proposed use of limited number of guestrooms

1. First, with respect to cabin crew members, the Holiday Inn currently caters for up to 30 cabin crew members each day. This requires a minimum of 45 rooms to be available daily to allow for room changeover. However, there are only 28 rooms which meet the contractual requirements on the rear façade overlooking the car park. Therefore the hotel would fail to provide a sufficient number of

	guestrooms to fulfil their current cabin crew obligations if this strategy were to be adopted. 2. Being limited in this way, would also mean that the hotel would not be able to pursue future cabin crew contracts for the duration of the construction programme. 3. Being able to neither fulfil current contracts nor pursue additional contracts would have a significant impact on the hotel's business operations. For this reason, this proposed mitigation strategy is not considered to be appropriate by Holiday Inn. *Comment on GAL Submissions made at ISH 8:* During Issue Specific Hearing 8, the Applicant suggested that it was unaware of the restrictions to number of guestrooms available for cabin crew on the rear facade of the hotel. This appears to be a misunderstanding on their part and there have been several instances where Marathon have clarified why the cabin crew members cannot simply be relocated to quieter rooms. In particular: (i) The Hotel Manager confirmed restrictions during the hotel site visit with the Applicant' noise consultant Steve Mitchell on 24 April 2024, a point which was reiterated again in the follow-up meeting of the same day. (ii) This information was clearly communicated to the Applicant on 12 June 2024 ahead of ISH8, in response to their proposed mitigation report provided on 7 June 2024 (See Appendix 2 - Stantec Response to the GAL Holiday Inn Hotel Noise Impact Report). For the sake of clarification and for the benefit of the ExA, a clear break down of limitations and operating conditions is provided in Appendix 1 of this note. **(b) Proposed closure of trickle vents** 1. Closing the trickle vents is not an attractive proposal in circumstances where Building Regulations require the continuous ventilation of rooms. 2. Building Regulation Approved Document Part F Volume 2 states that a sufficient level of background ventilation is required at all times to protect the health of occupants – noting that "*without adequate ventilation, mould and internal air pollutants may become hazardous to health and the risk of transmission of airborne infection is increased.*" 3. The hotel relies upon trickle vents being open to fulfil its requirements in this regard, as there is no central air system. In circumstances where there is no other means of ventilation, therefore, the proposal to close the trickle vents would plainly not be an acceptable mitigation strategy. 4. The same issue arises with the Applicant's proposal that secondary glazing could be installed on the façade facing the A217; so far there has been no suggestion as to how adequate ventilation within the hotel could be

	maintained. In circumstances where there is no other means of ventilation, this would plainly not be an acceptable mitigation strategy. Our expectation is that high performance in-wall acoustic vents will be required, along with either replacement or secondary glazing installed. 5. Aside from the need to maintain background ventilation, Holiday Inn also believe that even with trickle vents closed, this would fail to provide sufficient protection against all noise sources based on review of their predicted construction noise levels and the sound insulation performance offered by the current facade. 6. Taken together, our position is that the mitigation proposed is impractical and ineffective. We remain concerned therefore, that at present no acceptable mitigation has been proposed.
6.2	**<u>Summary of Outstanding Noise Issues</u>** We set out below for the benefit of the ExA the status of the technical engagement between GAL and Marathon's noise experts. <u>Ground Noise</u> 1. A key area of concern is understanding the extent of impacts on the hotel from future operational ground noise at the airport (particularly at the future aircraft stands and future aircraft central holding areas) pursuant to the Project. 2. GAL provided further information on the assessment of ground noise relating to the hotel on 24th June 2024. On the basis of results modelled at the façade of the hotel, it appears that there could be a significant impact based on the approximate magnitude of change and absolute noise levels. In particular, the absolute noise levels are close to the SOAEL at night, which is the level at which residential properties would be eligible for sound insulation under GAL's Noise Insulation Scheme. 3. There remain outstanding technical points subject to ongoing discussion but Marathon remains concerned that there will be significant ground noise impacts at the hotel and appropriate mitigation should be provided. <u>Construction Noise</u> 4. As set out above, it is now agreed that the construction works will give rise to noise within the hotel that requires mitigation. 5. Predicted internal noise levels during the construction works are presented in Appendix 3 – Stantec's Construction Noise Impact Assessment. These are based on information provided by GAL for various work periods and activities. This assessment indicates that the hotel <u>is likely to be affected **throughout the entire 3-year period of construction works**</u>. 6. Our view, as set out in the attached Stantec Construction Noise Impact Assessment Report, is that either replacement or secondary glazing is required to mitigate these effects, in conjunction with high performance acoustic trickle ventilators**.**

	7. Below is a request for information that remains outstanding: **Outstanding Information Requested at Deadline 4:** • **Provide assessment results at the hotel for anticipated A23 Bridgeworks activities during the day and night – inclusive of piling works**

APPENDICES

Appendix 1: Air Crew Contract Requirements/Stipulations

Air Crew Contract Requirements/Stipulations

- Rooms cannot be allocated on the ground floor.
- Rooms must be allocated by something other than noisy parts of the corridor, such as near lifts.
- Contracts are for double rooms only as twin rooms (single beds) are not acceptable.

Room Inventory Impact

- The hotel has 216 bedrooms.
- When full inventory is available to allocate to the Air Crew, the total number of bedrooms meet the contract requirements is 90 bedrooms.
- The following reasons reduce the inventory available that meet the contract requirements from 90 bedrooms to 28 bedrooms:
    - The rear of the hotel has a total 102 bedrooms.
    - Ground floor rooms on the rear: 18 bedrooms – these cannot be allocated to Air Crew
    - Premium rooms on the rear: 42 bedrooms – Air Crew are not contracted to Premium rooms.
    - Other rooms considered noisy: 14 bedrooms

Hotel Booking Requirements

- Contracted to host up to 15 cabin crew per day
- Hotel is required to block book 30 rooms to fulfil this requirement on any given day as overnight crew are not required to check out until midday and new crew arrive from 5 am daily (i.e. there is a cross-over period where rooms are required simultaneously occupied by the overnight crew and the new arrivals).
- The hotel has to clean the rooms before being able to release them again for use by either paying guests or new cabin crew. This means that there a further 15 rooms are out of action each day to allow for turnaround and reallocation.
- The total number of rooms required to fulfil the terms of the cabin crew contracts at present is therefore 45.

2024/2025 Business Strategy

- The hotel's 2024/2025 strategy is to grow its Air Crew business to three separate crews, equating to approximately 30 contracted rooms per night. To fulfil this would mean that 60 rooms are occupied at any one time and a further 30 rooms will be being turned around – i.e. totalling the entire number of contractually suitable rooms.
- All Air Crew contracts have the same requirements: no ground-floor rooms or rooms in noisy parts of the corridor (near lifts) because the Air Crew relax and sleep during the day.
- The impact of having only 28 rooms would be operationally unviable to fulfil current contract requirements, but would also prevent, Marathon from pursuing additional Air Crew contracts.

APPENDIX 2: STANTEC'S RESPONSE TO GAL HOLIDAY INN NOISE REPORT

TECHNICAL NOTE

Project Name:	Holiday Inn, Gatwick	**Prepared By:**	Eleanor Girdziusz
Project No:	332610163	**Reviewed By:**	Paul Taylor
Note No:	TN05	**Approved By:**	Nigel Fern
Date:	June 2024	**Subject:**	Review of GAL Holiday Inn Noise Report

Introduction

The following document provides comments in relation to a technical review of the noise mitigation proposals presented in GAL's Holiday Inn Hotel Noise Report (Application Document Name 10.41 version 1.0 dated June 2024).

Within the report, Mitchell Environmental review the anticipated impact of air, ground, traffic and construction noise on the hotel and conclude that if trickle vents are kept closed and air cabin crew are only assigned to the guestrooms on the rear facade, that the risk of noise disturbance will be sufficiently reduced.

Marathon Asset Management and Stantec maintain the position that this is not a practical or robust noise mitigation solution, for the reasons highlighted below.

- Operating Conditions – there are insufficient rooms on the rear façade to either maintain current airline contract requirements or to accommodate future contracts. The proposed mitigation measures will therefore result in injurious affection to the hotel.
- Building Regulation Approved Document F Compliance – GAL's approach to minimise noise disturbance will mean that guestrooms will not comply with the minimum background ventilation requirements of Approved Document F. It is a statutory requirement to comply with the Building Regulations.
- Internal Noise Levels – GAL's approach will see internal noise levels increasing by at least 9 dB in guestrooms during the day due to construction works, even if trickle ventilators are kept closed. Aside from this being a non-compliant ventilation solution (see point above and further details below), the increase in internal noise levels is expected to have injurious affection on the hotel.

Each point is discussed in further detail in the following sections.

Comments on the technical aspects of the assessment are provided in the marked-up version of the report in Appendix A. Several points need further clarification and consideration before the reported results are accepted as being an accurate representation of likely future internal noise levels in guestrooms.

Operating Conditions

The hotel has 216 bedrooms, and when full inventory is available to allocate to the Air Crew, the total number of bedrooms that meet the contract requirements is 90 bedrooms. Only 28 of these rooms are located on the rear facade.

With only 28 guestrooms available for air cabin crew on the rear façade, it is not possible to relocate all cabin crew members during periods of construction works, especially when also allowing for the fact that during cross-over periods, the same set of rooms cannot be immediately reallocated to incoming crew as they need to be cleaned prior to release.

On the basis of GAL's current noise mitigation proposals, the hotel would fail to meet its contractual obligations.

TECHNICAL NOTE

Building Regulation Approved Document Part F: Ventilation

Building Regulations protect the health and safety of people in and around buildings. To comply with the Building Regulations, it is necessary both to follow the correct procedures and meet technical performance requirements.

Approved documents are approved by the Secretary of State and give practical guidance on common building situations about how to meet the requirements of the Building Regulations 2010 for England. Each approved document covers the requirements of the Building Regulations 2010 relating to a different aspect of building work. The Building Regulations are statutory requirements and whilst alternative methods can be proposed to comply with the requirements, they cannot be opted out of.

Approved Document Part F Volume 2 (AFD2) covers ventilation requirements for buildings other than dwellings.

At present, the Holiday Inn complies with the Building Regulations Approved Document F ventilation requirements by maintaining minimum background ventilation rates via trickle ventilators located at the top of windows in each guestroom.

Closing the trickle ventilators will mean that the Building Regulations Approved Document Part F requirements will no longer be met and the hotel would fail to comply with statutory Building Regulations.

Notwithstanding the inherent practical challenges in opening and shutting trickle ventilators in all front-facing guestrooms between noisy and quiet periods of the construction works, intermittent opening of the trickle ventilators is also believed to be non-compliant with the Building Regulations.

GAL have not currently provided an alternative method by which they propose to maintain the ADF2 ventilation requirements in the hotel if they insist on the trickle vents needing to remain closed to prevent undue noise disturbance.

Internal Noise Levels

Even with closed trickle ventilators, the GAL noise report states that internal noise levels are expected to increase by as much as 9 dB above those currently experienced in the hotel during the day and night-time periods for "*most of the time*". The implication from surrounding text being that it could be even higher during certain periods.

With a 10 dB increase perceived as being a doubling in the noise volume, this will fundamentally change the ambient conditions within guestrooms and puts the feasibility of retaining air cabin contracts and attracting paying guests, at risk. Under the definition of injurious affection, if works interfere with the amenity or character to an extent which depreciates the value of an asset, a claimant is entitled to compensation.

Guidance from British Standard BS 8233:2014 is cited as justification that louder internal noise levels are likely to be acceptable and still allow sleeping. However, the guidance relating to higher internal noise levels being acceptable "if development is desirable" is intended to prevent internal noise levels being used as a reason to prevent new residential development and is not intended to justify not providing reasonable noise mitigation measures to protect an existing residential development.

In fact, Agent of Change principles puts the onus on the future developer to protect the existing amenity and use of residential premises, by designing to minimise the future noise impact. Whilst construction works may typically be seen as a temporary period of increased noise and specific measures may not ordinarily be applied, as there is the potential for injurious affection to the hotel operation and risk of reputational damage, we suggest that this principle should apply in this context.

GAL's proposed mitigation is simply to close trickle ventilators at the hotel, which as noted above, is not compliant with the Building Regulations and also fails to provide sufficient protection of the hotel from anticipated construction and ground noise impacts.

Conclusions

The proposed noise mitigation measures, or lack thereof, fail to adequately protect the hotel operation.

In summary, the proposals:

- Fail to allow current cabin crew contracts to be maintained;
- Prohibit agreement of future cabin crew contracts;
- Fail to maintain background ventilation rates and are therefore non-compliant with Building Regulations Approved Document Part F Volume 2, and
- Result in a fundamental change in the ambient sound levels in guestrooms, with potential injurious affection on the hotel operation.

At present, GAL have not presented any reasonable solutions to minimise the impact of noise on the hotel operations. Marathon Asset Management and Stantec maintain the position that further noise mitigation measures are required to mitigate the above risks.

Again, we request that GAL present a proposal that allows the hotel to continue to comply with the Building Regulations and which sufficiently mitigates the noise impact of the planned works.

TECHNICAL NOTE

Appendix A: Comments on the Technical Aspects of GAL's Holiday Inn Hotel Noise Impact Report

Available on request, but not included here due to extent of comments on technical issues which remain part of ongoing discussions.

APPENDIX 3: STANTEC CONSTRUCTION NOISE IMPACT ASSESSMENT

Holiday Inn, Gatwick

Construction Noise Impact Assessment

On behalf of **Marathon Asset Management**

Project Ref: 332610163 | Rev: 0 | Date: June 2024

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
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Document Control Sheet

Project Name: **Holiday Inn, Gatwick**

Project Ref: **332610163**

Report Title: **Construction Noise Impact Assessment**

Doc Ref: **332610163**

Date: **June 2024**

	Name	Position	Signature	Date
Prepared by:	Eleanor Girdziusz	Senior Associate Acoustician	EG	June 2024
Reviewed by:	Paul Taylor	Associate Acoustician	PT	June 2024
Approved by:	Matthew Barlow	Technical Director, Acoustics	MLB	June 2024
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved

Contents

Tables

Appendices

1 Introduction

1.1 Background

1.1.1 Stantec UK Limited (Stantec) has been commissioned to undertake a review of construction noise predictions provided by Mitchell Environmental on behalf of Gatwick Airport Limited, to assess the acoustic impact that the DCO proposed works are likely to have on the Holiday Inn, Gatwick.

1.1.2 This document summarises best practice acoustic criteria for hotel developments and the Intercontinental Hotel Group Brand standards, and provides a comparison of these against the DCO predicted noise levels at the hotel due to the planned construction works.

1.1.3 Recommendations for facade enhancements are also provided to provide mitigation of construction noise ingress into hotel guestrooms.

1.1.4 An explanation of the acoustic terminology used in this report is included in **Appendix A**.

2 External Noise Intrusion Criteria & Considerations

2.1 Introduction

2.1.1 This section of the report summarises best practice guidance relating to internal noise levels and control of external noise intrusion into hotel guestrooms. It also references the Intercontinental Hotel Group brand standards that apply to Holiday Inn premises.

2.1.2 Guidance on ventilation requirements are also provided, as there is a need to maintain compliance with Building Regulations Approved Document F Part 2 when considering facade arrangements and measures to control external noise ingress.

2.2 Acoustic Criteria

Intercontinental Hotel Group Brand Standards

2.2.1 Intercontinental Hotel Group (IHG) owns several hotel brands, including Holiday Inn.

2.2.2 Contractually, operators of Holiday Inn hotels have to adhere to the IHG brand standards. For internal noise levels, the following criteria must be met:

> *"The external noise intrusion standards set down in the specification reflect the various types of noise source that may be encountered and the different measurement descriptors that are applied to different noise sources. A maximum level in bedrooms is provided to account for the particularly high noise levels created during aircraft over-flights, or train pass-bys, whilst the average noise level addresses less fluctuating sources of noise such as road traffic.*
>
> *Internal noise levels from all external sources associated both with the hotel and other demises shall be controlled so as not to exceed the following levels:*
>
> | | | |
> |---|---|---|
> | *Guestrooms:* | *Daytime (07:00-23:00hrs):* | *35 dB $L_{Aeq,\ 1hour}$* |
> | | *Night-time (23:00-07:00hrs):* | *30 dB $L_{Aeq,\ 1hour}$* |
> | | | *45 dB L_{AFmax}* |
>
> *(excluding infrequent & irregular sources such as sirens or car alarms, but including regular traffic noise sources such as aircraft and train passbys)"*

2.2.3 It should be noted that a maximum noise limit is specified in the hotel brand standards and also ambient noise limits are set as 1-hour values, rather than for a16-hr daytime or 8-hour night-time period. Due to the shorter averaging period, these limits are more onerous than the typical British Standard BS 8233 guidance.

2.2.4 Measurements undertaken at the Holiday Inn in June/July 2023 indicate that current conditions are in line with the brand standards.

2.2.5 Compliance with the IHG Brand Standards is undertaken via annual inspections and bi-monthly review of revenue and associated complaints. Where an individual hotel is found to be non-compliant, monthly fines apply until issues are resolved and a waiver can be placed upon the hotel operation. If the hotel is sold whilst under waiver, this can severely impact the commercial value of the asset.

2.2.6 The DCO proposals have the potential to cause exceedance of the IHG Brand Standards noise limits and may lead to costs being incurred by Marathon Asset Management, either in direct losses or depreciation of value.

2.2.7 Whilst temporary constructions works would not ordinarily be identified as an area of non-compliance due to their relatively short timescales, in the case of the DCO, construction works are expected to take several years to complete and this would therefore be identified in the annual and bi-monthly reviews.

British Standard BS 8233:2014

2.2.8 British Standard BS 8233:2014 sets down recommendations for internal noise limits to suit the proposed use of spaces. The relevant criteria for bedrooms in dwellings are as shown in **Table 2.1**.

Table 2.1: British Standard BS 8233:2014 Internal Ambient Noise Limits

Time Period	Activity	Internal Noise Limit
Daytime (07:00 – 23:00)	Resting	35dB $L_{Aeq,16hour}$
Night-time (23:00 – 07:00)	Sleeping	30dB $L_{Aeq,8hour}$

2.2.9 Whilst the standard states that is it desirable that the above limits are not exceeded, it also notes that these limits relate to "anonymous noise" from sources without specific character. It goes on to state (emphasis added):

> "*Noise has a specific character if it contains features such as distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate.*"

2.2.10 In relation to hotels, BS 8233:2014 advises the following in paragraph 7.7.5.1.1:

> *"In hotels and other multi-occupancy premises containing rooms for residential purposes, it is desirable to avoid intrusive noise, both airborne and impact, in bedrooms, especially when occupants are sleeping (typically assumed to be at night-time).*
>
> *Intrusive noise can arise from other rooms or uses within the building, from external sources through facades and from internal building services, including heating, ventilation and air conditioning plant."*

2.2.11 The note included in section H.4 states:

> *"Some hotels may set lower noise levels, depending on location."*

2.2.12 As per 7.7.5.1.1, the standard assumes that sleeping occurs at night-time, and it is therefore inferred that if sleeping were to occur during the daytime within hotel bedrooms then the night-time criteria would be applicable.

2.2.13 Under section 6.3.2, the standard specifically addresses aircraft noise, stating the following in relation to noise contours and character of the noise:

> *"Care is needed in interpreting these contours as they tend to show average exposure, taking account of different modes of airport operation. This means that, on a particular day, the noise exposure at a particular location might be higher than implied by the contours, and consideration should be given to designing the building envelope for those operational days.*

> *Where treatment of the building envelope is required to achieve internal design standards then site-specific measurements should be recorded, including provided for the frequency content of the noise (predominantly low frequency noise).”*

2.2.14 The implication of this is that the recommended internal noise limits for guestrooms exposed to aircraft noise, should be lower than those typically stated. This is reflected in the IHG Brand Standards.

2.2.15 Whilst there is a sub-note which suggests that internal targets may be relaxed by up to 5 dB and still achieve reasonable internal conditions, this is generally taken to apply as a statement to allow new development in noisy urban environments, where there is often a compromise needed between the access to amenities offered by city centre locations and the noisier environments that are associated with this. It should not be taken as justification for louder internal levels in existing premises due to introduction of a new noise source, especially in the case of aircraft noise sources, which should arguably have more stringent limits applied.

2.2.16 The standard further notes that:

> *“Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL of $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values.”*

2.2.17 In the previous version of this standard, criteria were specified for individual events at night-time based on World Health Organization recommendations, as detailed in the next sub-section.

British Standard BS 8233:1999

2.2.18 The previous iteration of BS 8233 included guidance on limits for individual noise events, stating that:

> *“For a reasonable standard in bedrooms at night, individual noise events (measured with F time-weighting) should not normally exceed 45 dB L_{Amax}.”*

World Health Organization Community Noise Guidelines 1999

2.2.19 The World Health Organization Community Noise Guidelines 1999 was generally cited as the source of the BS 8233:1999 recommendations, with further clarification provided as follows:

> *“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10 - 15 times per night...”*

World Health Organization Environmental Noise Guidelines for the European Region

2.2.20 Whilst the latest version of WHO Guidelines no longer includes specific criteria relating to maximum noise levels from individual events, it does still recognise the importance of this metric, stating the following:

> *“In many situations, average noise levels like the L_{den} or L_{night} indicators may not be the best to explain a particular noise effect. Single-event noise indicators – such as the maximum sound pressure level ($L_{A,max}$) and its frequency distribution – are warranted in specific situations, such as in the context of night-time railway or aircraft noise events that can clearly elicit awakenings and other physiological reactions that are mostly determined by $L_{A,max}$.*

> *Nevertheless, the assessment of the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative. The guidelines therefore make no recommendations for single-event noise indicators."*

2.2.21 In the absence of more recent guidance, it is typical for acoustic design specifications to make reference to the 45 dB L_{Amax} criterion in order to achieve suitable conditions for sleeping in bedrooms.

2.3 Ventilation Criteria

2.3.1 A summary of ventilation requirements is provided here in response to the GAL noise mitigation strategy of closing trickle vents during construction works.

Building Regulations Approved Document F Part 2 (ADF2)

2.3.2 Building Regulations protect the health and safety of people in and around buildings. To comply with the Building Regulations, it is necessary both to follow the correct procedures and meet technical performance requirements.

2.3.3 Approved documents are approved by the Secretary of State and give practical guidance on common building situations about how to meet the requirements of the Building Regulations 2010 for England. Each approved document covers the requirements of the Building Regulations 2010 relating to a different aspect of building work. The Building Regulations are statutory requirements and whilst alternative methods can be proposed to comply with the requirements, they cannot be opted out of.

2.3.4 Approved Document Part F Volume 2 (AFD2) covers ventilation requirements for buildings other than dwellings.

2.3.5 Building Regulation Approved Document Part F Volume 2 states that a sufficient level of background ventilation is required at all times to protect the health of occupants – noting that:

> *"without adequate ventilation, mould and internal air pollutants may become hazardous to health and the risk of transmission of airborne infection is increased".*

2.3.6 Compliance with Approved Document F Part 2 is generally achieved by meeting the ventilation rates of CIBSE Guide B2. It also states that:

> *"Naturally ventilated buildings should follow additional guidance on ventilation in CIBSE's AM10."*

2.3.7 The CIBSE Guide B2 guidance for hotels is as follows, where ACH relates to the number of air changes per hour:

> *"10–15 ACH minimum for guest rooms with en-suite bathrooms"*

2.3.8 Guidance from CIBSE AM10 is as follows:

> *"The natural ventilation strategy must also be integrated with all other aspects of the building design. Key issues for consideration are:*
> *— A satisfactory acoustic environment: natural ventilation openings also provide a noise transmission path from outside to inside, and this may be a determining factor in some building locations. In addition, naturally ventilated buildings often include large areas of exposed concrete in order to increase the thermal capacity of the space. Such large areas of hard surface will require careful attention to achieve a satisfactory internal acoustic environment."*

2.3.9 CIBSE AM10 also goes on to specify that:

> *"Building Regulations Approved Document F*(4) recommends an opening area for background ventilation which is related to floor area, with a minimum provision in all habitable rooms of 4000 mm^2. Trickle ventilators can be in the window frame, part of the glazed unit or independent of the window."*

2.3.10 The Holiday Inn complies with the Building Regulations Approved Document F ventilation requirements by maintaining minimum background ventilation rates via trickle ventilators located at the top of windows in each guestroom.

British Standard BS 8233:2014

2.3.11 British Standard BS 8233:2014 also recognises the importance of maintaining sufficient background ventilation and states the following:

> *"NOTE 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the facade insulation or the resulting noise level.*
>
> *If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.*
>
> *NOTE 6 Attention is drawn to the Building Regulations."*

2.3.12 It is clear from the above that suitable internal noise levels must be achieved at the same time as complying with Building Regulations Approved Document F Part 2 for the hotel.

2.4 Resulting Criteria Recommendations

2.4.1 Based on the above legislation, industry best practice guidance and the IHG Brand Standards, it is recommended that internal noise levels at the Holiday Inn should be controlled so as not exceed to the following criteria.

Table 2.2: Recommended Internal Noise Limits

Time Period	Activity	Internal Noise Limit
Daytime (07:00 – 23:00)	Resting (Standard Guestrooms)	35dB $L_{Aeq,1hour}$
	Sleeping (Cabin Crew Rooms)	30dB $L_{Aeq,1hour}$
Night-time (23:00 – 07:00)	Sleeping (All Rooms)	30dB $L_{Aeq,1hour}$ 45 dB L_{Amax} *
* Not to be exceeded more than 10 times per night in line with WHO 1999 guidance		

2.4.2 These above criteria should be met whilst also achieving minimum background ventilation rates in line with Building Regulations Approved Document F Part 2.

3 Construction Noise Predictions

3.1 Introduction

3.1.1 Mitchell Environmental have provided predicted noise levels likely to occur at the hotel during 7 stages of the proposed construction works undertaken in the vicinity of the hotel. Their predictions are included in the GAL Holiday Inn Hotel Noise Impact Report (REP05-82).

3.1.2 Using the results of facade testing undertaken by Mitchell Environmental the following section summarises equivalent internal noise levels predicted to arise during each of the construction works periods and compare these against the recommended criteria in section 2.5.

3.2 Summary of Construction Noise Level Predictions

3.2.1 The following table summarises the external noise levels predicted to be incident on the facade of the Holiday Inn hotel during the identified works periods. Details of what construction activities each phase relates to are set down in the GAL Holiday Inn Hotel Noise Impact Report (REP05-82).

3.2.2 It should be noted that it is not clear whether these are facade incident noise level predictions or whether they are for worst case levels at a location 2 m from the facade. For the moment it is assumed that these levels are for a location 2 m from the facade to allow direct comparison against the facade sound insulation test results. The following values should be increased by 2-3 dB if they are later confirmed to be facade incident noise levels.

Table 3.1: GAL Construction Noise Modelling Results

Works Phase	**Predicted Construction Noise Level (dB $L_{Aeq,1hr}$) (assumed to be at 2 m from façade)**	
	Daytime (07:00-23:00)	**Night-time (23:00-07:00)**
1	73	-
2	66	55
3	67	-
4	67	62
5	70	-
6	67	-
7	-	65

3.3 Predicted Internal Noise Levels

3.3.1 Based on the above information and an average facade sound level difference of 22.4 dB $D_{ls,2m}$ with trickle vents open, the following internal noise levels are predicted to occur during each construction works phase. Relative compliance with the recommended internal noise criteria is also shown in each case.

Table 3.2: Predicted Internal Noise Levels due to Construction Works

Works Phase	Predicted Internal Noise Level Due to Construction Works (dB $L_{Aeq,1hr}$)				
	Daytime (07:00-23:00)	Standard Room Resting Compliance	Cabin Crew Room Sleeping Compliance	Night-time (23:00-07:00)	All Room Sleeping Compliance
1	51	X	X	-	-
2	44	X	X	33	X
3	45	X	X	-	-
4	45	X	X	40	X
5	48	X	X	-	-
6	45	X	X	-	-
7	-	-	-	43	X

3.3.2 As detailed above, during all phases of the construction works, internal noise levels are predicted to exceed the recommended criteria.

4 Facade Enhancement Recommendations

4.1.1 During construction works it is predicted that internal noise criteria will be exceeded at all stages of the works.

4.1.2 As this represents a considerable period of time (3 years anticipated at present), it is recommended that the sound insulation performance of the existing front facade is enhanced to provide additional protection against noise from the proposed construction activities.

4.1.3 In order to comply with the identified criteria, it is expected that a high performance in-wall acoustic ventilator is installed in conjunction with either replacement windows of suitable acoustic specification, or secondary glazing.

Appendix A Acoustic Terminology

Parameter	Description
Ambient Sound	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. Comprises of the residual sound and the specific sound when present.
Ambient Sound Level ($La = L_{Aeq,T}$)	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T.
A-Weighted Decibel (dBA)	A decibel level that has been corrected for the A-Weighting curve.
A-Weighting	Octave band and 1/3 octave band filters that correlate to the response of the human hearing system to sound pressure levels at different frequencies.
Background Sound	The level of sound measured in the absence of extraneous noise sources.
Background Sound Level ($L_{A90,T}$)	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using a fast time-weighting and quoted to the nearest whole number of decibels.
Decibel (dB)	A logarithmic unit used to describe the ratio between the measured level and a reference level of 0 dB. The ratio can be sound pressure, intensity or power. The reference value for sound pressure is 20 µPa and for sound power is 1 ρW.
Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$)	Value of the time-averaged A-weighted sound pressure level, in decibels (dB), of a continuous steady sound for the duration of the specified time interval, T.
Façade Level	The sound pressure level at a distance of 1 metre from the façade
Fast Time Weighted	The speed at which the instrument responds to changes in amplitude of the measured signal. The response time of a fats time-weighted instrument is 0.125 seconds.
Free-Field Level	The sound pressure level measured away from any reflective surfaces.
Frequency (f)	The number of cycles of pressure fluctuations within a given period of time. Measured in Hertz.
Hertz (Hz)	The unit of frequency or pitch of a sound. One hertz is equal to one cycle per second.
$L_{10,T}$	The noise level exceeded for 10 % for a given time interval, T. Generally used to describe traffic noise.
L_{Amax}	The maximum A-weighted level measured during a given time period.
Octave Band	Band of frequencies where the upper limit of the band is twice the frequency of the lower limit. E.g., the 1000 Hz band contains noise energy at all frequencies from 707 to 1414 Hz.
Percentile Level ($L_{AN,T}$)	The A-Weighted Sound Pressure Level which is exceeded for N% of the specified time interval. E.g., the LA90,1hour is the A-weighted sound level exceeded for 90% of 1 hour/
Sound Pressure	The difference between the pressure caused by a sound wave and the ambient pressure of the medium the sound wave is passing through. Measured in Pascals.
Sound Pressure Level (L_p)	The logarithm of the ratio of a given sound pressure (p) to the reference sound pressure (p0). The reference value for sound pressure is 20 µPa. Defined as: $L_p = 20log\left(\frac{p}{p_0}\right)$