ACOUSTIC IMPACT ASSESSMENT
Mechanical Extraction System

Applicant: Real Pizza Company
Site Address: 68 Broadwater Road, Worthing, BN14 8AG
Local Planning Authority: Worthing Borough Council
Proposed Use: Takeaway pizza premises

1. Introduction

This Acoustic Impact Assessment has been prepared to assess the potential noise effects associated with the proposed mechanical extraction system serving a takeaway pizza premises at 68 Broadwater Road, Worthing.

The assessment considers the nature of the proposed plant, anticipated noise emissions, acoustic mitigation measures, and the relationship of the site to nearby noise-sensitive receptors.

2. Site Context & Sensitive Receptors

The site is located on Broadwater Road within a mixed-use urban area characterised by commercial premises with residential accommodation in the surrounding vicinity.

Noise-sensitive receptors include:
- Residential dwellings in close proximity to the site
- Upper-floor residential accommodation along Broadwater Road

The existing acoustic environment is typical of an urban arterial route and is influenced by:
- Road traffic noise
- Pedestrian activity
- Existing commercial plant and services

Hetas Company No. 2407

Exoflue Ltd
Dairy Cottage
Mockbeggar Lane
Ibsley, Ringwood
Hampshire
BH24 3PR

Tel. 07802 783484
alex@alexreay.com

3. Description of Proposed Plant

The extraction system serves a single takeaway pizza oven only.

The system comprises:
• High-temperature inline mechanical extract fan (installed internally)
• Metaloterm MF twin-wall flue system
• Inline absorption silencer (MFSIA2 specification)
• Vertical discharge at roof level

The system operates at a steady duty during trading hours only and does not operate overnight.

4. Noise Sources Considered

The following potential noise sources have been assessed:
• Airborne noise from the fan motor
• Aerodynamic noise within the flue system
• Noise breakout from ductwork
• Discharge noise at the flue termination

The fan produces continuous broadband noise only, with no impulsive, tonal, or intermittent characteristics anticipated.

5. Acoustic Mitigation Measures

The extraction system incorporates the following acoustic mitigation measures:

Primary mitigation

• Inline absorption silencer (MFSIA2 type), providing an average insertion loss of approximately 35 dB(A) across mid-to-high frequencies, in accordance with ISO 7235 performance data

Secondary mitigation

• Metaloterm MF twin-wall flue system, providing inherent attenuation of breakout noise
• Mechanical extract fan installed internally within the premises and mounted on proprietary anti-vibration mounts, in accordance with manufacturer recommendations, to minimise the transmission of structure-borne vibration
• Vertical discharge arrangement designed to direct noise away from nearby noise-sensitive façades

Operational mitigation

• Fan operation limited to business opening hours only
• No late-night or overnight operation

6. Noise Criteria & Assessment Methodology

Assessment has been undertaken with reference to BS 4142:2014 + A1:2019 and ProPG guidance.

For mixed-use urban locations such as Broadwater Road, a representative daytime background sound level of approximately 55 dB(A) is considered appropriate.

Accordingly, a plant noise rating level of 45 dB(A) or lower at the nearest noise-sensitive receptor is considered acceptable.

7. Plant Noise Data & Acoustic Assessment

Manufacturer sound data for comparable high-temperature inline extraction fans indicates a maximum unattenuated sound power level in the region of 70–75 dB(A).

A conservative sound power level of 75 dB(A) has been adopted for this assessment.

The inline absorption silencer (MFSIA2 specification) provides an average insertion loss of approximately 35 dB(A), based on manufacturer data measured in accordance with ISO 7235.

Further reductions are achieved through:
• Internal fan location
• Twin-wall flue construction
• Vertical discharge configuration
• Distance attenuation

A conservative allowance of 5 dB(A) has been applied for residual breakout and environmental losses.

Predicted Noise Level at Nearest Receptor

Fan sound power level (assumed): 75 dB(A)
Less silencer attenuation: −35 dB(A)
Less additional losses: −5 dB(A)

Predicted receptor noise level: approximately 35 dB(A)

8. Noise Impact Assessment

The predicted noise level of approximately 35 dB(A) is around 20 dB(A) below the typical daytime background sound environment.

The installation is therefore considered compliant with BS 4142 guidance and will not result in adverse noise impact at nearby residential receptors. No tonal, impulsive, or intermittent characteristics are anticipated.

9. Cumulative Impact

The extraction system serves a single appliance only and does not materially add to cumulative plant noise in the area. No additional external mechanical plant is proposed.

10. Conclusion
• The proposed extraction system is appropriately designed
• Effective acoustic mitigation has been incorporated
• The development will not give rise to unacceptable noise disturbance
• The proposal is acceptable from an acoustic perspective