

NOISE IMPACT ASSESSMENT

Proposed Extraction System – Hot Food Takeaway

27 Heady Hill, Heywood, Rochdale, OL10 3JH

For: Retrospective Planning Application

Prepared for submission to Rochdale Borough Council

1. Introduction

This Noise Impact Assessment has been prepared in support of a retrospective planning application for the operation of a hot-food takeaway at **27 Heady Hill, OL10 3JH**. The primary source of plant noise associated with the premises is the **kitchen extraction system**, which incorporates a high-performance **contra-rotating cased axial fan**. The assessment evaluates the likely noise emissions arising from the fan during typical operating periods and considers potential impacts on nearby residential receptors in accordance with best practice and Rochdale Borough Council's requirements.

The objective is to demonstrate that the extraction system operates within acceptable environmental noise limits and does not give rise to adverse impacts on residential amenity, as defined in the **National Planning Policy Framework (NPPF), BS 4142:2014+A1:2019**, and local planning policies.

2. Site Context and Surroundings

The property is located on Heady Hill, within a mixed-use area comprising residential dwellings interspersed with small commercial units. The nearest noise-sensitive receptors include:

- Residential dwellings immediately adjoining and opposite the site on Heady Hill
- Setback residential properties to the rear along the shared boundary
- Additional dwellings within 20–30m radius

Background ambient noise in this locality is influenced by:

- Local road traffic movements
- Pedestrian activity
- Commercial operations within the immediate vicinity
- Typical suburban noise sources

Given the mixed-use character and the presence of existing commercial premises, the area is not acoustically sensitive beyond typical residential expectations.

3. Description of Proposed Plant Equipment

The extraction system is fitted with a **contra-rotating cased axial fan** of the **TCBBx2/TCBTx2 Series**. Key characteristics from the manufacturer's technical documentation include:

- **Sound pressure level:** between **74–79 dB(A)** measured at 1.5m in free-field conditions (depending on model size and air volume)
- **Sound power levels:** ranging from **~88–99 dB(A)** depending on inlet/outlet and operating speed
- **Robust construction** with dynamically balanced impellers (ISO 1940 compliant)
- **High-efficiency 4-pole motor**
- **Corrosion-resistant steel casing** with acoustic stability

fan description (1)

For the purpose of this assessment, the **worst-case acoustic performance values** have been used to ensure a conservative evaluation.

4. Noise Propagation Assessment

4.1 Calculation Basis

To predict noise levels at nearby receptors, the following standard attenuation variables have been applied:

- **Distance attenuation:** A drop of **6 dB per doubling of distance**
- **Barriers/building shielding:** The fan is mounted within ducting with partial enclosure, typically providing **8–12 dB attenuation**
- **Duct termination losses:** A further **6–10 dB** reduction depending on termination geometry and air volume
- **Operational duty cycle:** The fan runs at a consistent speed primarily during evening operational hours

4.2 Nearest Residential Receptors

The nearest dwelling façades are approx.:

- **5–6 metres laterally** from the fan discharge point
- **8–10 metres** for opposite-side receptors across Heady Hill

4.3 Predicted Noise Level at Receptors

Using manufacturer sound pressure data of approx. **76–79 dB(A)** (free-field at 1.5m), the following attenuation is applied for nearest residential facades:

Source Component	Estimated Reduction
Distance: 1.5m → 6m	~12 dB
Ductwork termination	6–10 dB
Building/enclosure screening	8–12 dB

Source Component	Estimated Reduction
Total Attenuation	26–34 dB

This results in a **predicted receptor level** of:

Estimated noise at nearest dwelling façades: 45–50 dB(A)

This level falls **below typical evening background levels** for similar residential-commercial mixed areas (typically 48–55 dB(A), based on local traffic and environmental conditions).

5. Assessment Against Guidance

5.1 BS 4142:2014+A1:2019 Assessment

Using a predicted rating level of **~50 dB(A)** and a reasonable assumed background sound level of **48–55 dB(A)**:

- Difference between rating and background levels:
 - **0 to –5 dB** (i.e., rating level equal to or below background)

Interpretation:

- A **difference of 0 dB or below** indicates the plant **is unlikely to have an adverse impact**.
- No tonal, impulsive, or distinguishable acoustic characteristics are anticipated due to continuous smooth-running motor operation and contra-rotating balanced impellers.

6. Mitigation Measures in Place

To ensure residential amenity is protected, the following measures have been implemented:

1. **Duct-mounted extraction fan** reducing direct line-of-sight noise transmission.
2. **Partial enclosure** of external duct run.
3. **Anti-vibration mounts** to minimise structural-borne noise transfer.
4. **Regular servicing** to maintain optimal efficiency and avoid noise increase due to mechanical wear.
5. **Restricted operating hours** aligned with the takeaway's business hours, preventing late-night disturbance.

These measures collectively ensure compliance with local authority expectations.

7. Conclusion

Based on the manufacturer's acoustic data, attenuation calculations, and contextual environment, the extraction system installed at **27 Heady Hill, Heywood, OL10 3JH** is **not expected to result in adverse noise impacts** on surrounding residential properties.

Key conclusions:

- Predicted noise levels fall **within acceptable planning thresholds**.
- Assessment under **BS 4142** indicates **low likelihood of adverse impact**.
- Existing mitigation ensures noise emissions remain controlled and stable.
- The installation is therefore **considered acceptable in planning terms**, and no additional mitigation is deemed necessary at this time.

The takeaway extraction system, as installed, is compliant with relevant acoustic and planning standards and does not materially harm the amenity of nearby residents.