An tÚdarás Inniúil um Thorann Aerárthaí

Aircraft Noise Competent Authority

Regulatory Decision Report Appendix D



Report

Draft Regulatory Decision

Recent Trends in Airport Noise Insulation Programmes in Europe

For Fingal County Council – Airport Noise Competent Authority

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1 Introduction

Noise Consultants Limited (NCL) have been commissioned by the Aircraft Noise Competent Authority (ANCA) to identify recent trends in noise insulation programmes in Europe. This has been carried out as a desk study of relevant Noise Insulation Schemes (NIS) and Compensation Programmes which have been recently proposed and/or implemented at other European airports. The review, which at this stage is only based on the information available on-line, is based on those airports that have planned or implemented a new NIS since 2020. In addition to these, airports where a NIS was created prior to 2020, but updated or extended in the last 5 years, have also been included in the review. Table 1-1 shows the list of the identified airports.

Table 1-1: List of European airports included in the Noise Insulation Scheme and Compensation Programmes review

Airport	IATA	Country	ATM 2019	PAX 2019	ATM 2023	PAX 2023	ATM 2025	PAX 2025
Vienna International Airport	VIE	Austria	266,802	31,662,189	221,095	29,533,186	240,400	32,600,000
Prague Vaclav Havel Airport	PRG	Czech Rep.	154,777	17,804,900	118,046	13,823,137	140,545	17,750,528
Bordeaux-Merignac Airport	BOD	France	n/a	7,703,143	n/a	6,584,194	n/a	5,900,000
EuroAirport Basel–Mulhouse–Freiburg	MLH	France	99,313	9,090,312	88,323	8,087,099	95,200	9,600,000
Frankfurt am Main Airport	FRA	Germany	513,912	70,560,987	430,436	59,359,539	460,272	63,200,00
Budapest International Airport	BUD	Hungary	122,814	16,173,489	108,068	14,701,080	420,000	19,600,000
Milan Bergamo Airport	BGY	Italy	95,377	13,857,257	101,696	15,974,451	124,318	16,064,528
Rome Ciampino Airport	CIA	Italy	52,253	5,879,496	42,745	3,884,689	42,377	3,987,517
Luxembourg Findel Airport	LUX	Luxemburg	94,985	4,416,038	n/a	4,856,932	91,000	5,300,000
Amsterdam Airport Schiphol	AMS	Netherlands	496,826	71,706,999	441,969	61,889,586	477,552	68,000,000

Airport	IATA	Country	ATM 2019	PAX 2019	ATM 2023	PAX 2023	ATM 2025	PAX 2025
Tenerife South Airport	TFS	Spain	70,277	11,168,506	83,598	12,337,244	92,309	13,969,678
Palma de Mallorca Airport	PMI	Spain	217,218	29,721,123	228,920	31,105,987	246,486	33,806,427
Vitoria Airport	VIT	Spain	10,800	174,022	14,185	309,929	14,208	307,163
Zurich Airport	ZRH	Switzerland	275,329	31,507,692	247,456	28,885,506	270,116	32,600,000

A further review has also been carried out specifically on proposed and recently implemented Noise Insulation Schemes at Gatwick, Luton and Stansted airports in the UK. These have all been proposed or consented as part of respective airport passenger and runway development plans since 2020.

Table 1-2: List of UK airports included in the Noise Insulation Scheme and Compensation Programmes review

Airport	IATA	Country	ATM 2019	PAX 2019	ATM 2023	PAX 2023	ATM 2025	PAX 2025
Gatwick Airport	LWG	United Kingdom	282,896	46,574,786	257,778	40,897,656	263,113	42,770,247
Luton Airport	LTN	United Kingdom	112,745	18,213,901	100,380	16,195,068	134,763	17,770,247
Stansted Airport	STN	United Kingdom	183,566	28,124,292	179,193	27,965,262	194,881	29,758,490

As this is a desk study, the accuracy of the information presented in this report is limited by the quality and depth of information identified from the on-line review.

2 Background

Most of airports in Europe and UK currently have or have previously implemented noise insulation schemes as a measure to mitigate the impacts of airport noise within the most sensitive buildings.

The objective of a Noise Insulation Scheme (NIS) is to mitigate the noise impacts by reducing internal noise levels from aircraft and the corresponding effects on health and quality of life, such as annoyance and sleep disturbance.

The adoption of a NIS may be the result of ongoing airport noise management strategies, a response to operational changes such as airspace change proposals or different runway usage. Such interventions can be a consequence of updating existing noise control programmes to reflect latest polices and best practices. In line with sustainable development principles, new or upgraded schemes are often implemented as part of airport development or expansion plans.

Sound insulation programmes can include replacing or upgrading windows, improving building facades, and the installation of acoustic ventilation. For noise-sensitive buildings exposed to the highest level of aircraft noise, voluntary purchase and/or compensation programmes are often offered where levels of aircraft noise are considered incompatible and would lead to unacceptable levels of exposure and associated health outcomes.

Despite airports using insulation schemes as a mitigation measure, to date there has been little or limited evidence to quantify the effectiveness of the schemes in improving health and quality of life[1].

[1] Guidance on the Application of the ICAO Balanced Approach to Aircraft Noise Management, ACI World, 2024, Page 22

3 Review of the recently implemented Noise Insulation Schemes and Compensation Programmes at European airports

Most of the major airports[2] in Europe have had at least one iteration of their respective NIS. Based on our review, the earliest NIS put into place was in the early 1970's (Manchester Airport, UK), with most European airports introducing their own NIS throughout the 2000's.

Revisions to NIS can be as a result of considerations such as airport land management strategies, or responses to developments, such as changes in airport operations through airspace changes. However, a large proportion of changes to NIS typically come about through airport development and expansion projects.

The objective of this review has been to identify the recent trends in NIS and Compensation Programmes at European airports (UK airports excluded). For this purpose, the following considerations and features have been included within the review of each identified NIS and Compensation Programmes:

- Implementation (or extension) year;
- Reason for implementation;
- Eligibility criteria;
- Type of building eligible;
- Noise insulation measures available under the scheme and/or economic compensations (e.g., in relation to outdoor / amenity noise;
- Financial contribution of the measures included within the scheme; and
- Scheme budget.

The following subsections provide an overview for each airport with the details of the features of their respective Noise Insulation Schemes and Compensation Programmes.

[2] END Art.3 (p) - "major airport" shall mean a civil airport, designated by the Member State, which has more than 50,000 movements per year (a movement being a take-off or a landing), excluding those purely for training purposes on light aircraft

3.1 Austria – Vienna International Airport

Airport	**Vienna International Airport**
Country	Austria (EU27)
Identified scheme(s)	• Noise Insulation Scheme in 2 runway configuration (2R NIS) • Noise Insulation Scheme in 3 runway configuration (3R NIS)[3]
Implementation (or extension) year	• 2R NIS: commenced in 2005 as a package of noise mitigation measures established as part of a mediation contract under a noise protection programme. Its implementation was completed in 2013. • 3R NIS: established in 2007 as part of the expanded noise protection programme and is supposed to be running until 2 years after the commencement of operations at a new third runway (planned to be constructed by 2033)
Reason for implementation	• 2R NIS: it was part of the package of noise mitigation measures established as part of a mediation contract for the noise protection programme in 2005. • 3R NIS: established to mitigate those affected by the future third runway.
Eligibility noise criteria	The eligibility noise criteria make reference to the combination of the *Sydney* and the L_{Aeq} Airport Noise Zones and which are based on the number of operations in the busiest six months with the 3 runway configuration in the forecast year defined in the mediation process. **Daytime criteria** Daytime *Sydney* Airport Noise Zone Based on the average of the 6 busiest months of the forecast year defined in the mediation process: • More than 80 overflights per 24 hours with a maximum level (L_{ASmax}) of over 65 dB • More than 140 overflights per 24 hours with a maximum level (L_{ASmax}) of over 65 dB with South/Southeast wind • More than 140 overflights per 24 hours with a maximum level (L_{ASmax}) of over 65 dB with West wind Daytime L_{Aeq} Airport Noise Zones The Daytime Airport Noise Zones (Fluglärmzonen, FLZ) are based on the equivalent continuous sound level (L_{Aeq}) for the period 06.00 to

[3] In November 2025 the Management Board of Flughafen Wien AG has decided not to proceed with the planned 3rd runway project any further https://viennaairport.com/jart/prj3/news_press/uploads/db-con_def-uploads/va-news/PA2025/E-68_2025.pdf

Airport	Vienna International Airport
	22.00 calculated considering the 6 busiest months of the forecast year defined in the mediation process. • Day FLZ 1: 54 dB - 57 dB L_{Aeq} • Day FLZ 2: 57 dB - 60 dB L_{Aeq} • Day FLZ 3: 60 dB - 65 dB L_{Aeq} • Day FLZ 4: over 65 dB L_{Aeq} **Night-Time criteria** Night-time *Sydney* Airport Noise Zone Based on the average of the 6 busiest months of the forecast year defined in the mediation process: • More than 20 overflights per 8 hours with a maximum level (L_{ASmax}) of over 65 dB with South wind • More than 15 overflights per 8 hours with a maximum level (L_{ASmax}) of over 65 dB with west wind Night-time L_{Aeq} Airport Noise Zones The Night-time Airport Noise Zones (FLZ) are based on the equivalent continuous sound level (L_{Aeq}) for the period 22.00 to 06.00 calculated considering the 6 busiest months. • Night FLZ 1: 45 dB - 50 dB L_{Aeq} • Night FLZ 2: 50 dB - 54 dB L_{Aeq} • Night FLZ 3: 54 dB - 57 dB L_{Aeq} • Night FLZ 4: over 57 dB L_{Aeq}
Type of building eligible	Residential
Number of receivers eligible	2R NIS and 3R NIS include together approximate 11,000 households
Noise insulation measures	The objective of the interventions is to reduce the average internal noise levels to 25 to 30 dB L_{Aeq} during both the daytime (06:00 – 22:00) and night-time (22:00 – 06:00) periods, and aircraft noise events to 52 dB L_{ASmax} (being the internal noise criteria derived from the national legislation 53 dB L_{ASmax} for individual events). The following measures are identified: **Measures for Daytime Airport Noise Zones**

Airport	Vienna International Airport

Financial contribution

Measure	Description	Sydney	FLZ 1	FLZ 2	FLZ 3	FLZ 4
Eligible spaces	All habitable spaces as well as kitchens	1 space	All	All	All	All
Windows improvements / exchange	sealing installation or fitting reparation or if needed windows are changed with new more performing ones	✓	✓	✓	✓	✓
Winter gardens	Contribution for the construction of conservatory in single-family houses	-	-	✓	✓	✓
Special construction	In case the installation of new windows is not sufficient, interventions on the façade are carried out	✓	✓	✓	✓	✓
Property Purchase	Based on market value	-	-	-	-	✓

Measured for Night-time Airport Noise Zones

Measure	Description	Sydney	FLZ 1	FLZ 2	FLZ 3	FLZ 4
Eligible spaces	Bedrooms or all habitable spaces depending on the FLZ	All bedrooms	All bedrooms	All	All	All
Windows improvements / exchange	sealing installation or fitting reparation or if needed windows are changed with new more performing ones	✓	✓	✓	✓	✓
Ventilation	Soundproofed vents or mechanical ventilation	✓	✓	✓	✓	✓
Special construction	In case the installation of new windows is not sufficient, interventions on the façade are carried out	✓	✓	✓	✓	✓
Property Purchase	Based on market value	-	-	-	-	✓

The objective of the interventions is to reduce the average internal noise levels to 25 to 30 dB L_{Aeq}, and aircraft noise events to 52 dB L_{Amax} (threshold being 53 dB L_{Amax}). The following measures are identified:

Financial support for Daytime Airport Noise Zones

Measure	Description	Sydney	FLZ 1	FLZ 2	FLZ 3	FLZ 4
Eligible spaces	All habitable spaces as well as kitchens	1 space	All	All	All	All
Windows improvements / exchange	Sealing installation or fitting reparation or if needed windows are changed with new more performing ones	50%	50%	100%	100%	100%
Winter gardens	Contribution for the construction of conservatory in single-family houses	-	-	50% (up to 9,000 EUR)	100% (up to 10,000 EUR)	100% (up to 10,000 EUR)

Airport	Vienna International Airport

Special construction	In case the installation of new windows is not sufficient, interventions on the façade are carried out	50%	50%	100%	100%	100%
Property Purchase	Based on market value	-	-	-	-	Yes

Financial support for Night-time Airport Noise Zones

Measure	Description	Sydney	FLZ 1	FLZ 2	FLZ 3	FLZ 4
Eligible spaces	Bedrooms or all habitable spaces depending on the FLZ	All bedrooms	All bedrooms	All	All	All
Windows improvements / exchange	Sealing installation or fitting reparation or if needed windows are changed with new more performing ones	50%	100%	100%	100%	100%
Ventilation	Soundproofed vents or mechanical ventilation	50%	100%	100%	100%	100%
Special construction	In case the installation of new windows is not sufficient, interventions on the façade are carried out	Yes	Yes	Yes	Yes	100%
Property Purchase	Based on market value	-	-	-	-	Yes

Scheme budget	Budget for the whole noise protection program is €50M
Reference(s)	• https://www.laermschutzprogramm.at/ • Aktionsplan Umgebungslärm 2024 - Flughafen Wien - Entwurf für die Einbindung der Öffentlichkeit

3.2 Czech Republic – Prague Vaclav Havel Airport

Airport	**Prague Vaclav Havel Airport**
Country	Czech Republic (EU27)
Identified scheme(s)	Ventilation Scheme
Implementation (or extension) year	Introduced in 2020 and phased as follow: • Phase I in 2020 – Schools • Phase II in 2021 - Residential • Phase III in 2022 - Residential • Phase IV in 2023 - Residential • Phase V in 2024 – Residential • 2026 - Residential
Reason for implementation	Additional protection measure as part of the ongoing noise management
Eligibility noise criteria	• Phase I to IV: Receptors within noise protection zone (60dB L_{AeqD} for daytime (06:00 – 22:00) and 50dB L_{AeqN} for night-time (22:00 – 06:00)) • Phase V: Receptors within noise protection zone (60dB L_{AeqD} for daytime, 50dB L_{AeqN}) and within the 2019 55dB L_{den} contour.
Type of building eligible	Residentials and noise sensitive receivers (e.g., schools, hospitals, etc.)
Number of receivers eligible	Approximately 500 dwellings
Noise insulation measures	Forced ventilation systems with heat recovery
Financial contribution	The maximum amount of the financial contribution for apartments and family houses is 100% of eligible costs.

Type of house unit	Method of execution	Maximum contribution (incl. VAT)
1 Room + Kitchen in Residential development	Local system	~€2,435
	Centralised system	-
2 Rooms + Kitchen;	Local system	~€3,650
	Centralised system	~€5,475
3 Rooms + Kitchen	Local system	~€5,270
	Centralised system	~€5,675
4 Rooms or more + Kitchen	Local system	~€6,895
	Centralised system	~€6,285
4 Rooms + Kitchen in Family House	Local system	~€8,515
	Centralised system	~€8,110
5 Rooms or more + Kitchen in Family House	Local system	~€9,935
	Centralised system	~€8,920

<table>
<tr><th>Airport</th><th>Prague Vaclav Havel Airport</th></tr>
<tr><td></td><td>"In previous years, the contribution covered an average of 97% of the costs of implementation. The amount of the contribution depends on the number of rooms equipped."
The below table is the figures for the 2026 scheme.
<table>
<tr><th>Type of house unit</th><th>Method of execution</th><th>Maximum contribution (incl. VAT)</th></tr>
<tr><td rowspan="2">Studio Flat</td><td>Local system</td><td>~€3,300</td></tr>
<tr><td>Centralised system</td><td>-</td></tr>
<tr><td rowspan="2">1 Room + Kitchen</td><td>Local system</td><td>~€4,800</td></tr>
<tr><td>Centralised system</td><td>-</td></tr>
<tr><td rowspan="2">2 Rooms + Kitchen Area</td><td>Local system</td><td>~€5,400</td></tr>
<tr><td>Centralised system</td><td>~€8,100</td></tr>
<tr><td rowspan="2">2 Rooms + Kitchen</td><td>Local system</td><td>~€6,900</td></tr>
<tr><td>Centralised system</td><td>~€9,300</td></tr>
<tr><td rowspan="2">3 Rooms + Kitchen Area</td><td>Local system</td><td>~€7,500</td></tr>
<tr><td>Centralised system</td><td>~€10,000</td></tr>
<tr><td rowspan="2">3 Rooms + Kitchen</td><td>Local system</td><td>~€9,000</td></tr>
<tr><td>Centralised system</td><td>~€11,200</td></tr>
<tr><td rowspan="2">4 Rooms + Kitchen Area</td><td>Local system</td><td>~€9,600</td></tr>
<tr><td>Centralised system</td><td>~€11,900</td></tr>
<tr><td rowspan="2">4 Rooms + Kitchen</td><td>Local system</td><td>~€11,000</td></tr>
<tr><td>Centralised system</td><td>~€13,000</td></tr>
<tr><td rowspan="2">5 Rooms + Kitchen Area</td><td>Local system</td><td>~€11,700</td></tr>
<tr><td>Centralised system</td><td>~€13,700</td></tr>
<tr><td rowspan="2">5 or more Rooms + Kitchen</td><td>Local system</td><td>~€13,200</td></tr>
<tr><td>Centralised system</td><td>~€15,000</td></tr>
</table></td></tr>
<tr><td>Scheme budget</td><td>€6M with approx. €800,000 for 2026 scheme.</td></tr>
<tr><td>Reference(s)</td><td>• https ://www.prg.aero/program-ventilace
• Ventilation 2026 | Václav Havel Airport Prague, Ruzyně</td></tr>
</table>

3.3 France – Bordeaux-Merignac Airport

Airport	Bordeaux-Merignac Airport
Country	France (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	The insulation scheme is part of the updated noise protection plan (Plan de gêne sonore, PGS) at Bordeaux-Mérignac airport, approved by the Prefect of La Gironde on 18 December 2023 and entered into force on 30 December 2023.

Airport	**Bordeaux-Merignac Airport**
Reason for implementation	The PGS is part of the noise management initiatives adopted at the airport and has been updated in 2023 due to the increment in noise in the areas adjacent to the airport. The plan identifies the areas in which dwellings can receive soundproofing support depending on their noise exposure.
Eligibility noise criteria	Properties within 2023 PGS contours: • Zone III: 55 dB L_{den} • Zone II: 62 dB L_{den} • Zone I: 70 dB L_{den}
Type of building eligible	Residential and noise sensitive receiver (schools, hospitals, etc.)
Number of receivers eligible	A total of 1295 dwellings falling within the 2023 PGS contours is potentially eligible: • 841 dwellings built prior 1975 • 244 dwellings built between 1975 and 1987 • 2010 dwellings built between 1987 and 2005 A total of 9 sensitive receivers falling within the 2023 PGS contours is eligible
	The objective of the scheme is to reduce the internal noise levels by at least 5 dB. The followings are the measures included in the plan: • Windows replacement • Front doors replacement • Ventilation installation • Roof and chimney shaft insulation • Rolling shutter boxes insulation
Financial contribution	Financial contribution is up to 80% of the eligible expense. The total amount of the financial contribution for each dwelling depends on the number of the rooms (main rooms in each household) + kitchen and in which PGS zone is located. Maximum amount of eligible expense per room in residential buildings are: • Zone I = €2,000

Airport	Bordeaux-Merignac Airport
	• Zone II = €1,850 • Zone III = €1,525 Maximum amount of eligible expense per room in individual housing. • Zone I = €3,500 • Zone II = €3,200 • Zone III = €2,900 Maximum amount of eligible expense for kitchens is: • Zone I = €1,850 • Zone II = €1,375 • Zone III = €1,075 Under the scheme it is possible to reach 90 – 95 or 100% of the financial contribution in the following special cases: • individuals on low income or receiving certain forms of social assistance mentioned in the social security code or in the family and social assistance code; ▪ an association of co-owners, ▪ a social housing organisation or ▪ a group of at least 5 private homeowners from the same municipality Survey work are covered for 5% of the total financial contribution.
Scheme budget	n/a
Reference(s)	• https ://www.gironde.gouv.fr/Actions-de-l-Etat/Transports-Navigation-et-securite-fluviale-Securite-routiere/Transports/Bruit-des-infrastructures/Plan-de-gene-sonore-de-l-aeroport-de-Bordeaux-Merignac/Plan-de-gene-sonore-de-l-aeroport-de-Bordeaux-Merignac

3.4 France – EuroAirport Basel–Mulhouse–Freiburg

Airport	EuroAirport Basel–Mulhouse–Freiburg
Country	France (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	The insulation scheme is part of the 2015 noise protection plan (Plan de gêne sonore, PGS) at EuroAirport Basel–Mulhouse–Freiburg,

Airport	**EuroAirport Basel–Mulhouse–Freiburg**
Reason for implementation	The PGS is part of the noise management initiatives adopted at the airport in 2015. The plan identifies the areas in which dwellings can receive soundproofing support depending on their noise exposure. From the end of 2023, financial contributions have been updated.
Eligibility noise criteria	Properties within 2015 PGS contours: • Zone III: 55 dB L_{den} • Zone II: 65 dB L_{den} • Zone I: 70 dB L_{den}
Type of building eligible	Residential and noise sensitive receiver (schools, hospitals, etc.) with building permit prior to 25/10/2004.
Number of receivers eligible	As per 2022 a total of 750 dwellings remained to be soundproofed.
Noise insulation measures	The objective of the scheme is to reduce the internal noise levels by at least 5 dB. The followings are the measures included in the plan: • Windows replacement • Front doors replacement • Ventilation installation • Roof and chimney shaft insulation • Rolling shutter boxes insulation
Financial contribution	• The maximum amount of eligible expense per room in residential buildings within the 2023 PGS is: o Zone I = €2,500 o Zone II = €2,310 o Zone III = €1,900 • The maximum amount of eligible expense per room in individual housing is: o Zone I = €4,375 o Zone II = €4,000 o Zone III = €3,625 • Maximum amount of eligible expense for kitchens is:

Airport	EuroAirport Basel–Mulhouse–Freiburg
	- Zone I = €2,310 - Zone II = €1,720 - Zone III = €1,345 - For collective housing facilities with a group application, confirmed by all co-owners: where the installation or renovation of a mechanical ventilation system is required: additional lump sum of €1,250 per residential unit is available. - If soundproofing of the roof is necessary and requires work from the outside, this operation may be the subject of specific assistance worth a lump sum of €6,250. - The NIS financial contribution is differentiated as follow. - Residents who pay income tax - Acoustic analyses + work are financed up to 80% of the maximum - Residents who do not pay income tax - Acoustic analyses + work are financed up to 90% of the maximum - Residents in receipt of social assistance and without an income - Acoustic analyses + work are financed up to 100% of the maximum - Combined projects receiving project management assistance (Assistance à Maîtrise d'Ouvrage – AMO), i.e., applications from: - an association of co-owners, - a social housing organisation or - a group of at least 5 private homeowners from the same municipality - Acoustic analyses are financed up to 100% of the maximum - The work is financed up to 95% of the maximum - The project management assistance (AMO) is paid directly to the commissioned company
Scheme budget	€6M allocated at the end of 2022
Reference(s)	• Accountability | EuroAirport

Airport	EuroAirport Basel–Mulhouse–Freiburg
	• Aides à l'insonorisation – les informations complémentaires (Soundproofing assistance – additional information), Section 5.

3.5 Germany – Frankfurt am Main Airport

Airport	**Frankfurt am Main Airport**
Country	Germany (EU27)
Identified scheme(s)	Noise Insulation and Compensation Scheme
Implementation (or extension) year	The scheme was running from 2011 with applications deadline set for 2021. Due to the Covid19 pandemic, the application deadline was extended to 2022.
Reason for implementation	The scheme was associated to the opening of the northwest runway in 2011.
Eligibility noise criteria	Receivers within the noise protection zones: • Zone 1: 60 dB L_{day}; • Zone 2: 55 dB L_{day}; • Zone 3: 50 dB L_{night}. Proposed criteria 2012: • 60 dB L_{Aeq} L_{day} • 55 dB L_{Aeq} L_{night}
Type of building eligible	Residential properties that were already built/had a building permit/construction had begun on 13/10/2011.
Number of receivers eligible	• 8,000 dwellings within NIS • 12,000 dwellings for outdoor and market value compensation • 17,000 dwellings for structural sound insulation through additional state funds
Noise insulation measures	• Sound insulation for all recreation rooms in dwelling within day-time protection zone • Sound insulation for bedrooms/sleeping areas in dwelling within night-time protection zone • Flat-rate compensation for outdoor residential area • Compensation for market value also possible • Structural Sound insulation (installation of new windows)
Financial contribution	• 100% financial contribution for sound insulation of recreation rooms • 100% financial contribution for sound insulation of bedrooms/sleeping areas in dwelling within night-time protection zone • Flat-rate compensation of €3,700 for outdoor residential area • Structural sound insulation (insulation of new windows) up to €4,350 through additional state funds • Compensation for market value

Airport	**Frankfurt am Main Airport**
Scheme budget	€200M allocated for noise protection of these: • €2.6M spent through NIS on 8,000 dwellings • €30.4M for outdoor and market value compensation on 12,000 dwellings • €39.7M trough additional state funds for structural sound insulation on 17,000 dwellings
Reference(s)	• https://www.umwelthaus.org/fluglaerm/schallschutz/passiver-schallschutz-der-regionalfonds/

3.6 Hungary – Budapest Ferihegy International Airport

Airport	**Budapest Ferihegy International Airport**
Country	Budapest Ferihegy International Airport (EU27)
Identified scheme(s)	Noise Insulation Scheme Extended Noise Protection Programme 2022-2025
Implementation (or extension) year	2021 for Schools 2022 for Residential buildings, implemented in three phases
Reason for implementation	The new scheme is part of the airport ongoing noise management
Eligibility noise criteria	Identified properties within noise protection zone: • 63 dB L_{den}, and • 55 dB L_{night}
Type of building eligible	Residentials and education buildings
Number of receivers eligible	4,000 dwellings potentially eligible
Noise insulation measures	• Retrofit window insulation: An extra 6 mm glass layer, which can reduce external noise by up to 10-12 decibels, for windows in living rooms and bedrooms. • Window replacement for bedrooms and eventually other rooms (e.g., living room) for windows over 10 years old. The window replacement of other rooms of the apartment (e.g., kitchen, bathroom, storage, etc.) is not supported during this program. • Noise insulation for roller shutter casings: For windows where the roller shutter is located directly above the window in a casing, noise insulation of the roller shutter casing is also available • Mechanical Ventilation
Financial contribution	• Additional window and shutter insulation in residential areas is free of charge. The supported noise protection services may not be requested by the residents in the other rooms of the property (e.g., kitchen, washbasin, storage, etc.) within the framework of the program. • The window change in the bedroom is free. To exchange windows in other rooms, such as living rooms, 70% of the costs will be paid as a subsidy from the program of the Foundation for the Neighbours of Budapest Airport. The remaining 30 percent share should be financed by the owner. The window replacement of other rooms of the apartment (e.g., kitchen, bathroom, storage, etc.) is not supported during this program. • Installation of mechanical ventilation in the bedroom is free.

Airport	Budapest Ferihegy International Airport
Scheme budget	• Budget allocated to the program was of €3M to be spread over 3 years. However due to success of program during the first two phases total budget for the scheme has been increased. To date ~€7.7M have been spent on residential buildings through the NIS • €200k have been spent for schools soundproofing.
Reference(s)	• https://zajvedelem.bud.hu/ • https://www.airport-suppliers.com/airport_press_release/third-phase-of-the-noise-protection-program-to-start-in-november/ • BUD Planet

3.7 Italy – Milan Bergamo Airport

Airport	**Milan Bergamo Airport**
Country	Milan Bergamo Airport (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	2023
Reason for implementation	In relation to airport development plan 2015-2030 which EIA was approved in 2022.
Eligibility noise criteria	Properties within Airport Acoustic Zoning approved in 2022 • Zone A: 60 - 65 dB LVA[4] • Zone B: 65 - 75 dB LVA[4]
Type of building eligible	Residential buildings within the 2022 Airport Acoustic Zoning
Number of receivers eligible	n/a
Noise insulation measures	• Structural interventions: New windows and structural insulation to achieve national legal requirements for indoor levels. All habitable rooms eligible. • Ventilation: Comfort cooling. All habitable rooms eligible
Financial contribution	100% Financial cover
Scheme budget	€4.5M
Reference(s)	• https://www.milanbergamoairport.it/en/mitigation-measures/

[4] This metric is used in Italy, as an Equivalent Continuous Sound Level. The LVA indicator is calculated on an annual basis, considering the three weeks with the highest traffic in the reference periods: 1 February – 31 May, 1 June – 30 September, and 1 October – 31 January. A 10 dB-weighting factor is applied to night movements (2300 – 0600).

3.8 Italy – Rome Ciampino Airport

Airport	Rome Ciampino Airport
Country	Rome Ciampino Airport (EU27)
Identified scheme(s)	Noise Insulation Scheme Acoustic Rehabilitation Plan Interventions
Implementation (or extension) year	Approved in 2018 through the Environmental Ministry Decree and implemented from 2020. In 2019, works for 2021 – 2025 were approved.
Reason for implementation	Exceedance of the noise limits of the Airport Acoustic Zoning
Eligibility noise criteria	Education building within Airport Acoustic Zoning: • Zona A: 60 - 65 dB LVA[4] • Zona B: 65 - 75 dB LVA[4] • Zona C: >75 dB LVA[4] or outside the Airport Acoustic Zoning with > 60 dB LVA[4].
Type of building eligible	Education buildings
Number of receivers eligible	30 education buildings
Noise insulation measures	• Façade interventions (new windows installation and structural works)
Financial contribution	100% Financial cover
Scheme budget	€9M
Reference(s)	• https://www.mase.gov.it/pagina/inquinamento-acustico • Ciampino Airport – Acoustic Rehabilitation Plan Interventions - VDP Srl

3.9 Luxemburg – Luxembourg Findel Airport

Airport	**Luxembourg Findel Airport**
Country	Luxembourg Findel Airport (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	Approved in 2023 by the Council of State.
Reason for implementation	Ongoing noise management.
Eligibility noise criteria	Residential buildings within the 2016 and 2021 Strategic Noise Map contours: • 64 dB L_{day} • 54 dB L_{night}
Type of building eligible	Residential buildings whose construction was authorised before 31st August 1986.
Number of receivers eligible	~2,630 dwellings
Noise insulation measures	Eligible investments concern the following: • Windows and French doors replacement; • Roller boxes insulation; • Controlled ventilation; • Drumming and plaster works; • Roof insulation; • Attic slab insulation.
Financial contribution	To be eligible for sound insulation improvement works, the residential building must: • Be used, in whole or in part, for housing (other than hotels, educational establishments and premises used for health or social purposes); • Have had their building permit issued before 31 August 1986; and • Be located at one of the identified addresses.

Airport	Luxembourg Findel Airport
	Eligible households can apply for financial aid of up to €16,000 for a house (increased from €12,500) and €8,000 for an apartment (increased from €6,250). Financial aid for consultation on sound insulation. Financial aid may only be granted for one consultation per residential building: €100 per hour of consultation with the acoustics consultant, up to a maximum of: • €2,100 for a house; • €2,600 for a residential apartment building with two flats. A supplement of €200 is offered for each additional flat, but the total must not exceed €3,200. Financial assistance for consultation is provided even if the work is not carried out. Financial aid for oversight and monitoring of the sound insulation improvement works. For oversight and monitoring of the improvement works, the applicant may obtain a subsidy of €100 per hour of oversight or monitoring, though the total amount cannot exceed: • €2,100 for a house; • €2,600 for a residential apartment building with two flats. A supplement of €200 is offered for each additional flat, but the total must not exceed €3,200. Financial aid for construction elements: Government subsidy for the following work, some of which must meet specific technical criteria: • replacement of windows and French windows (€260 per m^2 of window replaced); • insulation of the new elements replacing the shutter boxes (€280 per window concerned); • installation of a controlled ventilation system (€430 per habitable room); • wallpapering and plastering (€60 per window); • roof or attic floor slab renovation (€20 per m^2). The works to improve the sound insulation of the roof and the attic floor slab may not be split into two or more distinct phases, and only one application for financial aid may be submitted for this.

Airport	Luxembourg Findel Airport
	The total amount of all subsidies must be no greater than €16,000 for a house and €8,000 for a flat.
Scheme budget	€2.5M
Reference(s)	• https://www.luxtimes.lu/luxembourg/luxembourg-tackles-airport-noise-pollution-with-subsidy-to-insulate-homes/2694104.html • https://guichet.public.lu/en/citoyens/aides/logement-construction/aides-capital/isolation-acoustique-bruit-aerien.html#accordionItem-accordionitem_services_en_ligne_et_formulaires • https://legilux.public.lu/eli/etat/leg/loi/2023/08/23/a558/jo • Findel Airport: Lawmakers approve financial aid for noise pollution - RTL Today

3.10 Netherland – Amsterdam Airport Schiphol

Airport	Amsterdam Airport Schiphol
Country	Netherlands (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	Proposed in 2023 by Ministry of Infrastructure and Water Management
Reason for implementation	Related to the Dutch government initiatives on noise management and protection of the residents (which also included a reduction of the movement cap from 500,000 to 440,000) to achieve the set noise abatement objectives
Eligibility noise criteria	Dwellings located inside the 60 dB L_{den} noise contour which were not part of the any previous insulation schemes. The scenario considered is relative to the new cap proposed by the Dutch Government of 440,000 annual movements instead of the current 500,000 movements.
Type of building eligible	Dwellings located inside the 60 dB L_{den} noise contour which were not part of the any previous insulation schemes
Number of receivers eligible	n/a
Noise insulation measures	Interventions can include • sealing of cracks, • installation of thicker glass or double-glazed windows, • roof insulation improvements
Financial contribution	100% of costs
Scheme budget	No budget ceiling for the scheme

Airport	**Amsterdam Airport Schiphol**
Reference(s)	• https://www.schiphol.nl/en/you-and-schiphol/news/scheme-to-insulate-your-home-against-aircraft-noise/ • Geluidisolatieregeling Schiphol | Luchtvaart in de toekomst

3.11 Spain – Tenerife South Airport

Airport	**Tenerife South Airport**
Country	Spain (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	2021
Reason for implementation	Airport Noise Management
Eligibility noise criteria	Properties located inside the Acoustic Easement which corresponds to the envelope of the isophones 60 dB L_{day}, 60 dB L_{eve} and 50 dB L_{night}. The building license for these properties must be from prior to 4th June 2021.
Type of building eligible	Residential and noise sensitive receivers (educational, health and cultural uses that require special protection against noise pollution)
Number of receivers eligible	More than 2,400 properties
Noise insulation measures	n/a
Financial contribution	100% of costs
Scheme budget	No budget ceiling for the scheme
Reference(s)	• Sound isolation plans | Sustainability | Aena • Aena launches the Acoustic Insulation Plan for Aena airport Tenerife South • Aena starts a plan to soundproof more than 2,000 homes near the Tenerife South airport • Canarian Weekly - AENA announces free sound proofing for 1,500 homes near Tenerife and Lanzarote Airports

3.12 Spain – Palma de Mallorca Airport

Airport	**Palma de Mallorca Airport**
Country	Spain (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	New scheme approved in 2021 and further extended in 2024
Reason for implementation	Airport Noise Management due to airport growth in recent years
Eligibility noise criteria	Properties located inside the Acoustic Easement which corresponds to the envelope of the isophones 60 dB L_{day}, 60 dB L_{eve} and L_{night} 50 dB L_{night}.
Type of building eligible	Residential and noise sensitive receivers.
Number of receivers eligible	• In 2021 23 new homes had been included through the new plan. • In 2024 further 2,160 dwellings were added bringing the total number of dwellings included in the noise insulation schemes to a total of 4,904 dwellings
Noise insulation measures	n/a
Financial contribution	100% of costs
Scheme budget	No budget ceiling for the scheme. A total of €21M has been spent for the insulation of 1,586 dwellings up to 2024.
Reference(s)	• Sound isolation plans | Sustainability | Aena • Aena informs of the extension of the scope of action of the Acoustic Insulation Plan of Palma de Mallorca Airport

3.13 Spain – Vitoria Airport

Airport	**Vitoria Airport**
Country	Spain (EU27)
Identified scheme(s)	Noise Insulation Scheme
Implementation (or extension) year	New scheme approved in 2021
Reason for implementation	Airport Noise Management
Eligibility noise criteria	Properties located inside the Acoustic Easement which corresponds to the envelope of the isophones 60 dB L_{day}, 60 dB L_{eve} and 50 dB L_{night}. These properties also need to have a building permit issued prior to 5th February 2021.
Type of building eligible	Residential and noise sensitive receivers
Number of receivers eligible	78 dwellings and 3 noise sensitive buildings.
Noise insulation measures	n/a
Financial contribution	100% of costs
Scheme budget	No budget ceiling for the scheme. A total of €166k has been spent for the insulation of 11 dwellings up to 2024.
Reference(s)	• Sound isolation plans | Sustainability | Aena • Sound Insulation FAQs | Aena • The Environmental Monitoring Commission of Vitoria Airport gives light green to the Acoustic Insulation Plan

3.14 Switzerland – Zurich Airport

Airport	Zurich Airport
Country	Switzerland (EEA32)
Identified scheme(s)	Ventilation Scheme
Implementation (or extension) year	The Schutzkonzept Süd (Sud-Side Concept) Phase II has been introduced in 2021by the airport operator. The implementation phase started in 2024.
Reason for implementation	Airport Noise Management
Eligibility noise criteria	Properties located in the perimeter of the south protection concept. 55 dB $L_{Aeq,6-7}$ to protect the sleep or residents between 06:00 and 07:00.
Type of building eligible	Residential within the 55 dB L_{Aeq6-7} contour that did not have noise insulation or were part of the Sud-Side Concept Phase I.
Number of receivers eligible	n/a
Noise insulation measures	Zurich Airport offers two options to ensure fresh air supply in bedrooms. • Ventilation: The sound insulation fan provides fresh air from the outside and at the same time absorbs the sound. On request, fine dust or pollen filters can also be supplied instead of a standard dust filter. There are also devices with integrated heat recovery. • Window locking mechanism: An electric motor opens and closes the window via a mechanism mounted on the window view. It is connected to a timer, which can be programmed in such a way that the window closes before the first south approach or opens in the evening after the last scheduled departure. The mechanism works in two stages: The locking mechanism closes or opens the window while the locking mechanism locks or unlocks the window. The window can be opened or closed at any time via the electrical control. The manual opening of the windows (e.g., for cleaning) also remains possible.
Financial contribution	100% of costs for the offered standard measures. Additional measures to the offered standard ones are at the expense of the property owner.
Scheme budget	n/a
Reference(s)	• Sound insulation program • Protection concept sued

4 Summary of the review's findings for European airports

Noise Insulation Schemes and Compensation Programmes proposed or commenced since 2020 have been identified at 14 European airports (excluding the UK). However, at four airports the identified schemes were adopted prior to 2020, but have been either implemented, updated or extended in the last 5 years.

In the majority of cases (10 out of 14), the identified schemes have been proposed or commenced as part of wider airport noise management initiatives. In three cases, the schemes were adopted as part of airport development or expansion proposals, of which one has been introduced since 2020.

Residential and noise sensitive buildings are eligible to participate to the programmes in more than half of the identified schemes, while for the rest of the cases relate only to residential buildings. In only one case the scheme is specifically designed for educational buildings.

Generally, all the identified schemes offer window performance improvements, or replacement, along with other insulation works (e.g., insulation of the rolling shutters). Structural interventions to improve the façade performance may also be part of the planned measures. Two of the identified schemes provide exclusively for acoustic ventilation programmes. Ventilation measures are also offered through the wider noise insulation schemes at five other airports.

Compensation in relation to outdoor noise is offered through three of the identified schemes. Property purchase, or market value compensation, are included in two of the identified schemes. Both of these relate to airport development/expansion plans.

There is only one identified programme specifically addressing night-time noise. Most schemes express eligibility through metrics either related to a 24-hour noise exposure period and metric (e.g., L_{den}, LVA[4]), or a combination of daytime noise exposure metrics ($L_{Aeq,16h}$, L_{day}) and night-time metrics ($L_{Aeq,8h}$, L_{night}).

In the majority of cases, the financial contribution is between 50 and 100% of the intervention costs, with most providing 100% of the costs.

The following table provides a comparison of the main features of the identified schemes, highlighting the commencement dates of the programmes since 2020, and whether they are in relation to a development or an expansion plan.

Table 4-1: Summary of the findings of the review of the Noise Insulation Schemes and Compensation Programmes

IATA	Identified scheme(s)	Is the identified scheme related to a development / expansion plan?	Was the identified scheme effectively introduced post 2020?	Noise eligibility criteria	Type of eligible receptors	Total Number of eligible receptors	Measures	Financial covers	NIS budget in €
VIE	Noise Insulation Scheme	Yes[3]	No	Flight Noise Zones from 54 dB $L_{Aeq,16h}$ and 45 dB $L_{Aeq,8h}$ and number of overflights	Residential	11,000 households	• Windows improvements • Windows exchange • Structural interventions • Winter gardens • Ventilations • Property purchase	From 50% to 100% depending on noise exposure levels	(50M[5])
PRG	Ventilation Scheme	No	Yes	Noise Protection Zone from 60 dB $L_{Aeq,D}$ and 50 dB $L_{Aeq,N}$ + 2019 55 dB L_{den}	Residential and noise sensitive receivers (schools, hospitals, etc.)	500 households	Forced ventilation systems with heat recovery	100% of eligible costs from 3300 EUR to 13200 EUR depending on size of household	6M with approx.. 800K for 2026 scheme.
BOD	Noise Insulation Scheme	No	Yes	Noise Protection Zone from 55 dB L_{den}	Residential and noise sensitive receivers (schools, hospitals, etc.)	1,295 households	• Windows replacement • Front doors replacement • Ventilation installation • Roof and chimney shaft insulation • Rolling shutter boxes insulation	80% to 100% of the eligible expense depending on social categories, number of rooms and exposure levels.	n/a
MLH	Noise Insulation Scheme	No	No	Noise Protection Zone from 55 dB L_{den}	Residential and noise sensitive receivers (schools, hospitals, etc.) with building permit prior to 25/10/2004.	n/a	• Windows replacement • Front doors replacement • Ventilation installation • Roof and chimney shaft insulation • Rolling shutter boxes insulation	80% to 100% of the eligible expense depending on social categories, number of rooms and exposure levels.	6M
FRA	Noise Insulation and Compensation Scheme	Yes	No	Noise protection zone from 60 dB L_{day} and 55 dB L_{night}	Residential and noise sensitive receivers (schools, hospitals, etc.)	• 8,000 households through NIS • 12,000 households for compensation	• Sound insulation • New window installation	• 100% for sound insulation	(200M[5])

[5] Budget for the whole noise protection programme

IATA	Identified scheme(s)	Is the identified scheme related to a development / expansion plan?	Was the identified scheme effectively introduced post 2020?	Noise eligibility criteria	Type of eligible receptors	Total Number of eligible receptors	Measures	Financial covers	NIS budget in €
						• 17,000 dwellings for structural sound insulation	• Compensation for outdoor residential area • Compensation for market value	• Structural sound insulation up to 4,350 EURO • Flat-rate compensation of 3,700 EUR for outdoor residential area • Compensation for market value	
BUD	Noise Insulation Scheme	No	Yes	Noise protection zone from 63 dB L_{den} and 55 dB L_{night}	Residential and noise sensitive receivers (schools, hospitals, etc.)	4,000 households	• Retrofit window insulation • Windows replacement • Noise insulation for shutter casing	100% for programmed interventions (70% for replacement in additional rooms)	3M but increased to 7.7M
BGY	Noise Insulation Scheme	Yes	Yes	2022 Airport Acoustic Zoning >60 dB LVA	Residential	n/a	• Windows replacement • Structural insulation • Ventilation (Comfort cooling)	100%	4.5M
CIA	Noise Insulation Scheme	No	No	2022 Airport Acoustic Zoning >60 dB LVA	Education	30 Education building	• Windows replacement • Structural insulation	100%	9M
LUX	Noise Insulation Scheme	No	Yes	2016 and 2021 Strategic Noise Map contour from 64 dB L_{day} and 54 dB L_{night}	Residential	~2,630 households	• Windows and doors replacement; • Roller shut insulation • Roof / Attic insulation • Ventilation • Drumming and plaster works	Between 50% and 100% up to 16,000 EUR	2.5M
AMS	Noise Insulation Scheme	No	Yes	60 dB L_{den}	Residential	n/a	• Insulation works such as sealing of cracks, • Installation of new windows • Roof insulation improvements	100%	No budget ceiling

IATA	Identified scheme(s)	Is the identified scheme related to a development / expansion plan?	Was the identified scheme effectively introduced post 2020?	Noise eligibility criteria	Type of eligible receptors	Total Number of eligible receptors	Measures	Financial covers	NIS budget in €
TFS	Noise Insulation Scheme	No	Yes	Acoustic Easement 60 dB L_{day}, 60 dB L_{eve}, 50 dB L_{night}	Residential and noise sensitive receivers (schools, hospitals, etc.)	~2,400 households	n/a	100%	No budget ceiling
PMI	Noise Insulation Scheme	No	Yes	Acoustic Easement 60 dB L_{day}, 60 dB L_{eve}, 50 dB L_{night}	Residential and noise sensitive receivers (schools, hospitals, etc.)	~2,185 households	n/a	100%	No budget ceiling
VIT	Noise Insulation Scheme	No	Yes	Acoustic Easement 60 dB L_{day}, 60 dB L_{eve}, 50 dB L_{night}	Residential and noise sensitive receivers (schools, hospitals, etc.)	78 households and 3 noise sensitive buildings	n/a	100%	No budget ceiling
ZRH	Ventilation Scheme	No	Yes	55dB $L_{Aeq,6-7}$	Residential	n/a	• Ventilations • Window locking mechanism	100% for standard measures	n/a

5 Review of the recently implemented Noise Insulation Schemes and Compensation Programmes at UK airports

As a minimum requirement, the UK Government expects airport operators to offer acoustic insulation to noise-sensitive buildings, exposed to levels of noise of 63 dB $L_{Aeq,16hr}$ or more. Where airport operators are considering developments which result in an increase is noise the UK Government would expect airport operators to offer financial assistance towards acoustic insulation to residential properties which experience an increase in noise of 3dB or more which leaves them exposed to levels of noise of 63 dB $L_{Aeq,16h}$ or more. Any potential proposals for new nationally significant airport development projects following any Government decision on future recommendation(s) from the Airports Commission would need to consider tailored compensation schemes where appropriate, which would be subject to separate consultation. Airports may wish to use alternative criteria or have additional schemes based on night noise where night flights are an issue[6].

However, the UK Government is also proposing in its long-term plan for sustainable growth new measures to improve noise insulation schemes where noise exposure may increase in the short term or to mitigate against sleep disturbance. The government therefore proposes to extend the noise insulation policy threshold beyond the current 63 dB to 60 dB $L_{Aeq,16hr}$. For airspace changes which lead to significantly increased overflights, to set a new minimum threshold of an increase of 3dB L_{Aeq}, which leaves a household in the 54 dB $L_{Aeq\ 16hr}$ contour or above as a new eligibility criterion for assistance with noise insulation[7].

A review has been carried out specifically on the Noise Insulation Schemes for Gatwick, Luton and Stansted airports in the UK, which have all been proposed as part of airport developments since 2020.

The following aspects related to their respective development plans and proposed schemes have been taken into considerations for the review:

- Development elements:
    - Passenger Growth
    - Terminal Development
    - Runway Capacity
    - Planning Route
    - Planning Status
- Eligibility criteria;
- Types of buildings eligible;
- Noise insulation measures available under the scheme; and
- Financial contribution of the measures included within the scheme.

[6] Aviation Policy Framework, Presented to Parliament by the Secretary of State for Transport by Command of Her Majesty, March 2013
[7] Aviation 2050 The future of UK aviation, A consultation, Presented to Parliament by the Secretary of State for Transport by Command of Her Majesty, December 2018

The following subsections provide an overview for each airport with the details of the features of their respective Noise Insulation Schemes.

5.1 United Kingdom – Gatwick Airport

	Airport	Gatwick Airport
Development elements	Passenger Growth	Increase from 67.2.4 mppa to 80.2 mppa by 2047 (increase of 13mppa over the 'without project' projection)
	Terminal Devt	Extension
	Runway Capacity	Yes – North runway and 60,000 additional ATMs
	Planning Route	DCO
	Planning Status	At examination
Eligibility Criteria		Eligibility contours: • 54 – 57 dB $L_{Aeq,16hr}$ • 57 – 60 dB $L_{Aeq,16hr}$ • 60 – 63 dB $L_{Aeq,16hr}$ • ≥63 dB $L_{Aeq,16hr}$
Type of building eligible		Residentials
Noise insulation measures		• Insulation in the form of replacement acoustic glazing or secondary glazing to all windows plus acoustic ventilation and blinds to noise sensitive rooms (bedrooms, sitting rooms, dining rooms and studies). • Replacement doors to noise sensitive rooms and upgrading of bedroom ceilings where practical
Financial contribution		

Eligibility contour	54-57 dB $L_{Aeq,16hr}$	57-60 dB $L_{Aeq,16hr}$	60-63 dB $L_{Aeq,16hr}$	≥63 dB $L_{Aeq,16hr}$
Financial assistance for agreed works[8]	~€5,300	~€7,700	100% of costs	100% of costs

[8] Assuming 1 GBP = 1.185 EUR

5.2 United Kingdom – Luton Airport

	Airport	Luton Airport
Development elements	Passenger Growth	Increase of passenger cap from 18 mppa to 32 mppa (increase of 14 mppa)
	Terminal Devt	Extension
	Runway Capacity	No
	Planning Route	DCO
	Planning Status	Examination Complete - Deliberation
Eligibility Criteria		Eligibility contours: • 54 – 57 dB $L_{Aeq,16hr}$ • 57 – 60 dB $L_{Aeq,16hr}$ • 60 – 63 dB $L_{Aeq,16hr}$ • ≥63 dB $L_{Aeq,16hr}$
Type of building eligible		Residentials
Noise insulation measures		Following measures applies to habitable rooms including bedrooms, dining rooms: • Insulation in the form of upgraded acoustic double glazing or secondary glazing. • Ceilings or lofts with over boarding and acoustic lining. Acoustic thermal insulation above lofts. • Suitable ventilation to be provided so that windows can be kept closed in warm weather.
Financial contribution		**Eligibility contour** | **54-57 dB $L_{Aeq,16hr}$** | **57-60 dB $L_{Aeq,16hr}$** | **60-63 dB $L_{Aeq,16hr}$** | **≥63 dB $L_{Aeq,16hr}$** Financial assistance for agreed works[8] | Up to ~€4,740 | Up to ~€7,110 | Up to ~€23,700 | 100% of costs

5.3 United Kingdom – Stansted Airport

	Airport	Stansted Airport
Development elements	Passenger Growth	Increase of passenger cap from 35 mppa to 43 mppa (increase of 8 mppa)
	Terminal Devt	Extension
	Runway Capacity	No
	Planning Route	Town and County Planning Act
	Planning Status	Consented following Appeal
Eligibility Criteria		Eligibility contours: • 57 – 60 dB $L_{Aeq,16hr}$ • 60 – 66 dB $L_{Aeq,16hr}$ • ≥66 dB $L_{Aeq,16hr}$
Type of building eligible		Residentials
Noise insulation measures		• Double glazing • Mechanical ventilation • Loft insulation • Households subject to high levels of noise (69dB LAeq or more) can also apply for funding to help with the cost of relocating.
Financial contribution		**Eligibility contour** | **54-57 dB $L_{Aeq,16hr}$** | **57-60 dB $L_{Aeq,16hr}$** | **60-63 dB $L_{Aeq,16hr}$** | **≥63 dB $L_{Aeq,16hr}$** Maximum funding contribution towards measures[8] | Up to ~€5,925 | Up to ~€9,480 | Up to ~€11,850 | Up to ~€11,850

6 Summary of the review's findings for UK airports

The Noise Insulation Schemes at Gatwick, Luton and Stansted airports have all been proposed as part of their respective airports' development plans, which include increments in the number of passengers and terminal extensions, and in one case an increase in runway capacity.

All three schemes use the day time noise metric $L_{Aeq,16hrs}$. For two of them the eligibility criteria starts from 54 dB $L_{Aeq,16hr,}$ while the third starts from 57 dB $L_{Aeq,16hr}$.

The schemes offer window replacement or secondary glazing installations, and mechanical ventilation. Generally, all the schemes offer a capped economic contribution, where the maximum amount depends on the level of noise exposure. However, one scheme offers 100% of financial cover for the works carried out on households exposed to the highest noise levels.

The following table provides a comparison of the main features of the identified schemes, highlighting for each airport the development elements, and the financial contribution offered for each noise band.

IATA	Development elements					Noise eligibility criteria	Type of eligible receptors	Measures	Financial cover[8] (Eligible contours $L_{Aeq,16hr}$)				
	Passenger Growth	Terminal Development	Runway Capacity	Planning Route	Planning Status				54-57 dB	57-60 dB	60-63 dB	63-66 dB	≥ 66 dB
LGW	From 67.2 mppa to 80.2 mppa by 2047	Extension	Yes, North runway and 60,000 additional ATMs	DCO	At Examination	From 54 dB $L_{Aeq,16hr}$	Residentials	• Window replacement • Secondary glazing • Acoustic ventilation • Acoustic blinds • Door replacement	~€5,300	~€7,700	100% of costs	100% of costs	
LTN	From 18 mppa to 32 mppa	Extension	No	DCO	Examination Complete - Deliberation	From 54 dB $L_{Aeq,16hr}$	Residentials	• Window replacement • Secondary glazing • Ceiling/Loft insulation • Mechanical ventilation	Up to ~€4,740	Up to ~€7,110	Up to ~€23,700	100% of costs	
STN	From 35 mppa to 43 mppa	Extension	No	Town and County Planning Act	Consented following Appeal	From 57 dB $L_{Aeq,16hr}$	Residentials	• Double glazing • Mechanical ventilation • Loft insulation • Relocation funding if subject to noise	Up to ~€5,925	Up to ~€9,480	Up to ~€11,850	Up to ~€11,850	

IATA	Development elements					Noise eligibility criteria	Type of eligible receptors	Measures	Financial cover[8] (Eligible contours $L_{Aeq,16hr}$)				
	Passenger Growth	Terminal Development	Runway Capacity	Planning Route	Planning Status				54-57 dB	57-60 dB	60-63 dB	63-66 dB	≥ 66 dB
								levels of 69dB LAeq or higher.					