



BRNO UNIVERSITY OF TECHNOLOGY

VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

FACULTY OF CIVIL ENGINEERING

FAKULTA STAVEBNÍ

INSTITUTE OF BUILDING STRUCTURES

ÚSTAV POZEMNÍHO STAVITELSTVÍ

BLOCK OF FLATS IN BRNO

BYTOVÝ DŮM, BRNO

ACOUSTICS AND VIBRATION ASSESMENT

BACHELOR'S THESIS

BAKALÁŘSKÁ PRÁCE

AUTHOR

AUTOR PRÁCE

Vedat Demirkiran

SUPERVISOR

VEDOUCÍ PRÁCE

Ing. Jan Müller, Ph.D.

BRNO 2024

A2 – ACOUSTICS AND VIBRATION ASSESSMENT

The weighted sound reduction index in the field $R'w = Rw - k1$

For masonry Protoherm 30 P10 with thickness 300mm

Weighted laboratory sound reduction index $Rw = 48 \text{ dB}$

For EPS thermal and acoustic insulation with thickness 140mm

Weighted laboratory sound reduction index $Rw = 40 \text{ dB}$

Correction value $k = 2 \text{ dB}$

$$R'w = Rw - k1 = 48 + 40 - 2 = 86 \text{ dB} \geq 53 \text{ dB}$$

Assesment of the ceiling structure

Weighted laboratory sound reduction index $Rw = 55 \text{ dB}$

Correction value $k = 2 \text{ dB}$

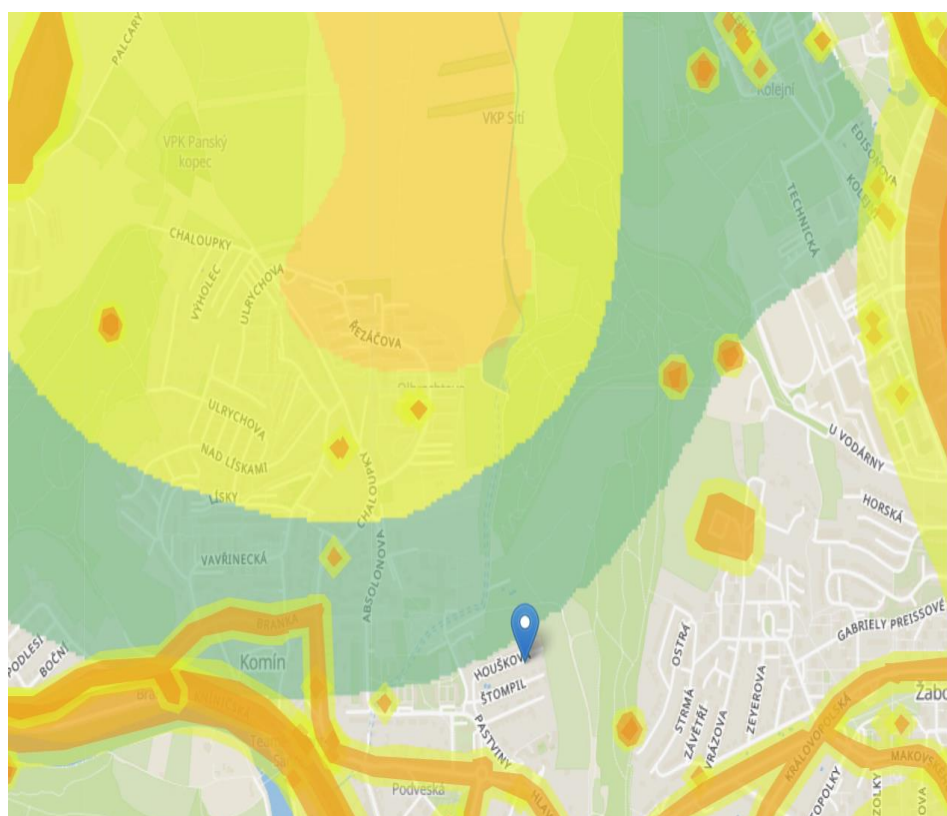
$$R'w = Rw - k1 = 55 - 2 = 53 \text{ dB} \geq 52 \text{ dB}$$

The weighted normalized impact sound level $L'nw$

$$L'nw = Lnw + k2$$

$$L'nw = Lnw - \Delta Lw + k2$$

$$L'nw = Lnw - \Delta Lw + k2 = 85 - 34 + 2 = 53 \leq 63 \text{ dB} \text{ It satisfies the terms.}$$



About the Flight Noise Map Dashboard

Feel free to visit our [home page and blog](#) for more info about noise map

Both decibel values and flyovers were within ± 2 value difference from the sensor measurement of the data points used in the evaluation. The colors used in the visualisation represent a range of L_{eq} values as follows:

