Università degli Studi di Ferrara
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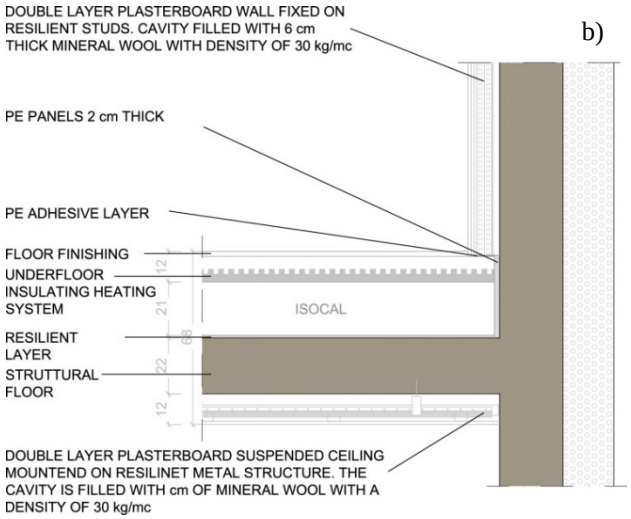
FIELD MESUREMENT OF IMPACT SOUND INSULATION ACCORDING TO THE UNI EN ISO 16283-2 STANDARD	Date of test **17/10/2017**

- **Clients:** **ARCOBALENO 2 SPA, Via dell'Industria 31 - 40138 Bologna**
- **Description of the building:** The building is located in Via A. Mattiazzo in Ponzano Veneto (TV). The clients provided the following information: 220 mm thick structural concrete subfloor, resilient layer Arco SOLAIO 15 mm thick; lightweight thermal insulating concrete screed (isocal) 210 mm thick, underfloor heating pipe system with XPS thermal insulting panels covered by a concrete screed, 120 mm; parquet used as floor finishing. Suspended ceiling in 12.5 mm thick plasterboard layer, fixed on studs resiliently mounted on the structural floor. The inner cavity is filled with mineral wool slabs 40 mm thick, density of 30 kg/m^3. The wall façade is lined with an external thermal insulation composite system and a double layer plasterboard wall mounted onto a metal frame on the inner side, the cavity is filled with 60 mm thick slab of mineral wool, density of 30 kg/m^3. This building was constructed by the company Crema Costruzioni snc based in Ponzano Veneto (TV).

a)

b)



c) d) e)

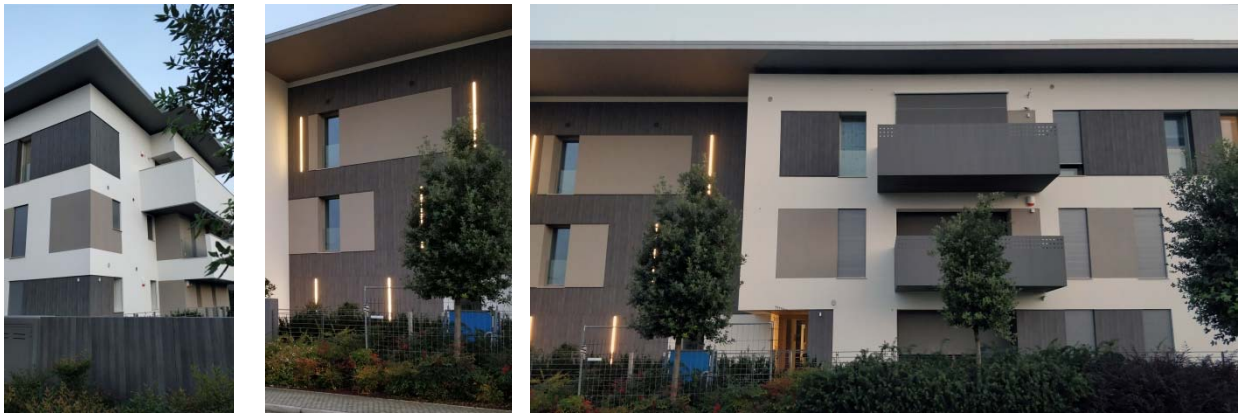


Figure 1: a) plan view of the apartment (in red the receiving room); b) measured floor; c), d), e) photos of the building.

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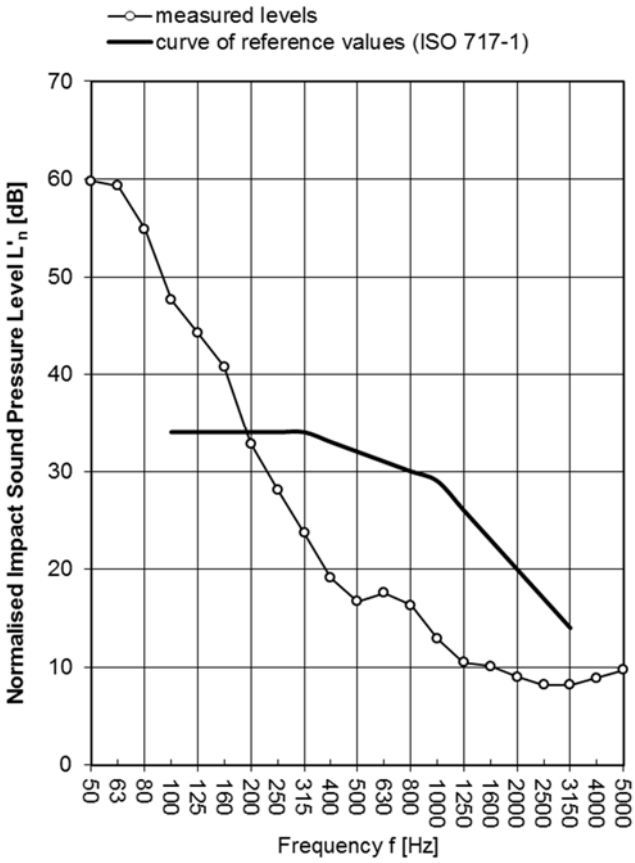
- **Surface of the element:** 14.4 m^2
- **Net volume (without furniture) of the receiving room:** 33.8 m^2
- **Measurement equipment:** Sound level meter B&K 2260; SLM calibrator B&K 4231.
- **Sound source:** Normalised tapping machine.

Frequency *f* [Hz]	***L'n* [dB] 1/3 octave band**
50	59.8
63	59.3
80	54.9
100	47.6
125	44.3
160	40.8
200	32.8
250	28.1
315	23.7
400	19.1
500	16.7
630	17.6
800	16.3
1000	12.9
1250	10.5
1600	10.1
2000	9.0
2500	8.2
3150	8.2
4000	8.9
5000	9.7



RATING IN ACCORDANCE WITH UNI EN ISO 717-2 STANDARD

L'_{nw} (C_I) = **32 (3) dB** $C_{I,50\text{-}2500}$= 16 dB

CONCLUSION

The experimental investigation highlights an extremely good performance in term of single number quantity, which was possible thanks to several factors: high surface mass of the floor system; presence of suspended ceiling and internal plasterboard linings with air cavity, in both cases filled with mineral wool; very accurate workmanship; very good performance of the resilient layer.

For the acoustic laboratory
Prof. Patrizio Fausti