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An hybrid method for sound transmission through opened windows

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An hybrid model for the calculation of sound transmission between apartments when windows are opened is presented. It is an extension of Kropp's model for balconies (integral/modal/wave approach). Two rectangular rooms are set in a baffle with rectangular openings. A point source is placed in one room and sound attenuation between rooms is computed. The external field may include the ground and a nearby building by means of a combined image source approach to compute a Green function in the integral description at the openings. Results are validated against BEM and published measurements. SEA is employed to assess the importance of vibration transmission relative to airborne transmission through the external medium.