

ACOUSTIC BARRIERS IN URBAN AREAS ALONG RAILROADS AND HIGHWAYS

DEFINITION AND ROLE

Acoustic barriers are systems that are designed to reduce noise emanating from road or rail traffic. An acoustic barrier limits the scope of nuisances by deviating or absorbing the direct transmission of airborne noise coming from vehicles or from rolling railway equipment. The construction generally consists of foundations, poles and panels as well as other materials whose assembly makes it possible to mainly focus on acoustic performances.

STRESSES

Given their exposure within road and rail infrastructures, structures and panels assembled in the form of barriers or screens must meet many criteria. The hold of the barriers and their mechanical stability must be ensured over time so as to withstand the stresses associated with wind loads, the dynamic pressures caused by traffic, impacts caused by various projections, etc.

REQUIRED PROPERTIES

The mechanical resistance class of structural timber must be greater than or equal to D 30. The components of timber acoustic barriers are generally used in situations requiring usage class 4, due to their exposure while in service. In termite zones, the pieces of timber must either be naturally durable with respect to termites or they must have undergone an appropriate treatment. For certain weatherproof destinations (tunnels, roofing works, etc.), timber protection by fireproofing* can be recommended. If a treatment is planned in the wood mass, the timber must be impregnable. Barrier performance is evaluated

according to standards EN 14389, EN 1793 and EN 1794.

PRINCIPLES OF IMPLEMENTATION

The panels must be designed to allow water drainage. Particular attention must be paid to foundations and assemblies, given the efforts they have to bear.

USAGE CLASS

The parts that make up acoustic barriers predominantly fall under usage class 4. Some durability 2 species can be used in the upper parts of the panels (coping) or for lateral lathing to protect absorbent material.



Photo: Reflective acoustic barriers along a road
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Photo: Absorbent acoustic barriers along a railway