

**Mechanical Analysis of Soundproof Plate with Function of Wind Load Reduction
and Experimental Verification Using Prototype in Practical Scale**

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In order to realize extremely high soundproof walls without reinforcing a viaduct drastically, we have developed a new type of soundproof plate, which has high soundproof performance in an ordinary state and can reduce a wind load applied on it sufficiently to keep the viaduct to be safe when a strong wind blows. Since the movement of the plate is controlled by magnetic attractive force, we calculated the magnetic attractive force around the plate by a magnetic field analysis. Moreover, we have executed a wind tunnel test and a soundproof property test to verify the mechanism and the property of the plate using a prototype in practical scale.