Acoustic characteristics of the design of Jakarta Cathedral

Abstrak

In architectural acoustics, Cathedrals and Churches are usually give specific acoustic characteristics and their acoustic treatments therefore are relatively difficult. In the case of Jakarta, there is only one Cathedral that was built around 1890 with a Neo-Gothic style and now is still being used. The capacity of the Cathedral is for 800 people, it has been used for Catholic masses and sometimes for musical, choir, and chamber orchestra performances. The plan shape of the cathedral is cross with 60 m length, main width is JO m and 5 m for the aisles in each side. The height of the ceiling is 17 m. The electro-acoustic is used for the masses and performances, although it is said that it is not necessary. The acoustic attribute judged to the cathedral therefore should be assessed and evaluated, by investigating the behaviour of sound. This paper evaluates the acoustic properties of the cathedral in relation with its shape and dimensions. The surrounding materials used for the cathedral are also evaluated. The acoustic measurements involved are reverberation time. The derived acoustic parameters were then validated with the theoretical predictions. Besides, subjective predictions were used from several seating positions. The results obtained from the measurements indicated that the design of cathedral is appropriate regarding its RT for masses and choirs as well as the interior design for architectural point of view, and therefore the judgement for not using electro-acoustic is appropriate.