

Room Acoustics – Homework 1

The following rooms are considered for an acoustic treatment according to their purposes:

Group 1: classroom (10 m x 6 m x 3 m, 40 seats) without sound reinforcement

Group 2: lecture hall (20 m x 15 m x 4 m, 250 seats) with and without sound reinforcement

Group 3: drama theatre (30 m x 20 m x 7 m, 800 seats) with and without sound reinforcement

Group 4: concert hall (35 m x 20 m x 15 m, 1300 seats) without sound reinforcement

Group 5: opera house (30 m x 20 m x 20 m, 2000 seats) without sound reinforcement

Group 6: church (45 m x 25 m x 25 m) with organs and sound reinforcement for speech

Group 7: sport hall (100 m x 80 m x 25 m, 10000 seats) for sport events and concerts with sound reinforcement

The approximate dimensions are given as Length x Width x Height. When sound reinforcement is present, it is used to support the speakers/performers, not for sound reproduction.

With regard to the expected sources of sound in the rooms and relevant objective/subjective criteria of the listeners, formulate (at least qualitatively) general requirements for room acoustics.

NOTE: Focus on the requirements, not possible acoustic measures for satisfying them (even if you are aware of some). When possible, use norms and other literature as references.