

Improving Concert Hall Acoustics Through Modelling

CHALLENGE

The Irish Chamber Orchestra needed to ensure their performances at the RDS Concert Hall met their acoustic standards.

SOLUTION

By collaborating with the RDS and the ICO, AWN conducted a room acoustic analysis using ODEON modelling software to provide acoustic improvement recommendations.

RESULT

AWN's recommendations were implemented as reflective panels around the room, which led to positive reviews from concert attendees enjoying improved acoustics.

APPLYING MODELLING SOFTWARE TO IMPROVE CONCERT ACOUSTICS

In 2008 the Irish Chamber Orchestra (ICO) was considering a programme of concerts to be held at the RDS Concert Hall. At an early stage, however, concerns were raised by the ICO over the acoustic performance of the space. The acoustic environment was not quite right for the type of programme typically performed by the ICO.

Working with the RDS and drawing on its close working relationship with the ICO, AWN Consulting Ltd., a Trinity Consultants team, provided design advice in respect of improving the room acoustics within the Concert Hall and providing the ICO with an acoustic environment that met its requirements.

The room acoustic analysis was undertaken using proprietary modelling software (ODEON) with the objective of quantifying the acoustic quality of the space for a variety of different seating and stage layouts.

The acoustic model allowed several important room acoustic parameters to be calculated, including reverberation time, intimacy, clarity and envelopment. It was concluded that the Concert Hall in its existing form did not have adequate reverberation for orchestral music and that there were insufficient lateral reflections to both the audience and the stage.

In order to improve the room acoustics of the Concert Hall for performances by the ICO several reflective panels were introduced around the room.