The influence of glazing

Glass type:

To measure the influence of glazing, a general purpose door construction was tested in a fully caulked condition with the first test being carried out using a reference panel, of the same construction as the door. This resulted in performance of Rw.35dB.

The reference panel was subsequently replaced with pre-glazed panels using various glass types. The reference panel and pre-glazed panels were dimensioned such that the dimensions provided for a clear glass area equal to 25% of the total door area. This dimension was chosen on the basis that the area would be sufficient to indicate the influence of glazing on the door leaf without the glass performance overwhelming the door leaf characteristics.

This test series and other base test data indicated that the glass thickness rather than the glass type influenced the sound attenuating performance of a doorset design.

Generally thicker glass types provided for improved performances. However, for any given door construction design and sealing arrangement a plateau performance was achieved after which further increases in glass thicknesses had little if any effect.

For a doorset providing for a fully caulked flush door performance of Rw.32dB, the following results have been achieved with operational doors with a 25% clear glass area using a simple Norsound 710 / 810 sealing system:

6mm Pyroshield = Rw.32dB
10mm Pyrodur = Rw.34dB.

For a doorset providing for a fully caulked flush door performance of Rw.35dB, the following results have been achieved with operational doors with a 25% clear glass area using a simple Norsound 710 / 810 sealing system:

6mm Pyroshield = Rw.35dB
10mm Pyrodur = Rw.36dB.
16.8 Optilam-Phon = Rw.37dB

For a doorset providing for a fully caulked flush door performance of Rw.36dB, the following results have been achieved with operational doors with a 25% clear glass area using a Norsound 710 +720/ 810 sealing system:

7.2mm Pyroguard = Rw.36dB
10mm Pyrodur = Rw.36dB.
15mm Pyrostop = Rw.36dB
23mm Pyrostop = Rw.37dB

Glass area:

Base test data relating to the influence of the clear glass area is more limited but the following can be advised for guidance:

For a doorset providing for a fully caulked flush door performance of Rw.31dB, the following results have been achieved with operational doors using a simple Norsound 710 / 850 sealing system:

7.2mm Pyroguard @ 8.9% = Rw.32dB
7.2mm Pyroguard @ 22.35% = Rw.32dB

For a doorset providing for a fully caulked flush door performance of Rw.30dB, the following results have been achieved with operational doors using a simple Norsound 710 / 850 sealing system:

7.2mm Pyroguard @ 27% = Rw.32dB
7.2mm Pyroguard @ 35% = Rw.33dB

Glazing acoustic doors - general advice:

The beading system in itself will change the characteristics of the door leaf with further influences resulting from the glass thickness and the clear glass area.

For doors providing for a fully caulked performance up to Rw.32dB as a flush door construction: Test evidence indicates that this performance can be matched or bettered for an operational doorset *(otherwise to the same details)* using 6.5 ~ 10mm thickness glass types in conjunction with a simple acoustic sealing arrangement *(e.g. Norsound 710 / 810).*

For doors providing for a fully caulked performance up to Rw.35dB as a flush door construction: Test evidence indicates that this performance can be matched or bettered for an operational doorset *(otherwise to the same details)* using 10mm *(or thicker)* glass types in conjunction with a more robust acoustic sealing arrangement *(e.g. Norsound 710 + 720 / 810).*

More limited base test data indicates that the area of glazing can have an influence and that, for use with general purpose door constructions, the clear glass area should not be less than 10% of the door leaf area.