Noise reduction glazing

Döpfner windows + doors from LAROS Technologies use glass with a **minimum noise reduction of 32 dB**, which is better than the usual Australian single glazed window. It is not possible to say how much better, as noise reduction depends not only on the glass but very much on how the window is installed and how airtight it is. Special noise reduction glass is available on request. Depending on the configuration a **reduction of 45 dB** can be achieved in many situations.

Noise reduction is a very complicated topic. In a very simplified way, it can be described in the following way: **Inside noise [dB] = Outside noise [dB] – Reduction [dB]**

Outside noise example	Reduction	Inside noise	
Lawnmower (90 dB)	32 dB	90 dB – 32 dB = 58 dB	"Normal conversation"
Traffic (70 dB)	45 dB	70 dB – 45 dB = 25 dB	"Whisper"

PAINFUL & DANGEROUS		
Use hearing protection or avoid	140	· Fireworks · Gun shots · Custom car stereos (at full volume)
	130	· Jackhammers · Ambulances
UNCOMFORTABLE		
Dangerous over 30 seconds	120	· Jet planes (during take off)
VERY LOUD		
Dangerous over 30 minutes	110	· Concerts (any genre of music) · Car horns · Sporting events
	100	· Snowmobiles · MP3 players (at full volume)
	90	· Lawnmowers · Power tools · Blenders · Hair dryers
Over 85 dB for extended periods can cause permanent hearing loss.		
LOUD		
	80	· Alarm clocks
	70	· Traffic · Vacuums
MODERATE		
	60	· Normal conversation · Dishwashers
	50	· Moderate rainfall
SOFT		
	40	· Quiet library
	30	· Whisper
FAINT		
	20	· Leaves rustling

Source: www.HowsYourHearing.org

Noise reduction glazing

Noise in window glass is reduced in several ways:

- Glass thickness: The thicker the glass, the better the noise reduction
- Varying glass thickness: In double or triple glazing it is beneficial to choose different glass thicknesses which has an impact on which frequencies are reduced which offers an overall reduction in noise transmission
- Laminated glass: Special laminated glass with thick interlayer films can reduce noise transmission significantly

Examples of available noise reduction glazing:

- A basic triple glazing with 3 different glass thicknesses (8mm outside pane, 4mm middle pane, 6mm inside pane) can offer a reduction of 39dB
- An advanced triple glazing also including laminated glass (8mm outside pane, 4mm middle pane, 8.76mm laminated inside pane) offers a reduction of 45dB

Other considerations:

- Thicker glass and laminated glass are more costly than standard 4mm glass.
- Thicker glass increases the weight of a window significantly which makes installation more difficult and therefore more costly.
- Laminated glass also offers improved resistance against break ins because if it gets smashed, it stays in place (much like the windshield in a car). It can therefore offer greater deterrence against intruders. However, if the laminated pane is smashed, the glazing unit still needs to be replaced.