# Rockfon rules the waves at Puddle Ducks

**Puddle Ducks is a thriving business welcoming over 20,000 babies and children at a number of locations across the UK every week. Staffed by a highly qualified team, the company prides itself on providing child-led instruction in a safe and nurturing environment.**

Classes at the swim school's brand-new, dedicated pool in Barons Quay, Northwich, were flourishing but increased attendance had resulted in unwanted noise, making communication difficult. These conditions can result in a phenomenon known as The Lombard Effect or Lombard Reflex, which often occurs in spaces with poor sound control. It is an involuntary tendency of speakers to increase their vocal effort to enhance the audibility of their voice and can have a negative physiological and psychological influence on wellbeing. Staff members working in these conditions might also suffer vocal damage.

**Acoustic analysis and guidelines**

Puddle Ducks wanted to remedy the situation in the best way possible, so an inspection and measurements of the acoustics in the teaching pool area were commissioned by Rockfon and conducted by Hepworth Acoustics of Manchester. In their report they advise that the most useful description of reverberation is Reverberation Time (RT), which is the amount of time it takes for the sound level to become inaudible after the sound has stopped.

The report also mentions that, although there are no specific guidelines for privately operated pools, 'Acoustic design of schools: performance standards' Building bulletin 93 (February 2015) (BB93), does offer guidance for design targets for swimming pools in schools.

The aim of these guidelines is to provide suitable reverberation times (RTs) to allow clear communication of speech between teacher and student. The RT is quoted in terms of the mid frequency reverberation time $T_{mf}$, which is the arithmetic average of the reverberation times in the 500 Hz, 1 kHz and 2 kHz octave bands. The maximum reverberation time for swimming pools with a floor area of less than 280 $m^2$ is 1.5 $T_{mf}$, per second.

**Consultation process and proposal**

Rockfon Area Manager, Natasha Checketts, *"Following a referral, I visited the site with Gary Hymanson of Granmore Ceilings and discussed the issues being experienced at the pool with Puddle Ducks Business Development Manager, Jo Warner. In addition to unwanted noise, there were challenges with maintaining the appropriate environmental conditions in the pool hall, meaning a tailored solution would be needed. Following further consultation, I proposed our solution and plan of action to Puddle Ducks and was given the go-ahead."*

Granmore's Gary *Hymanson*, spoke about the process, *"Regarding the installation, the trickiest part was finding a suitable solution to carry out the installation without draining the pool. We decided to board the pool area out so we could use access equipment above the water level. Also, due to the difficulty in reaching the pool through the building, an access point was specially built into the wall of*

*the space, enabling us to get the materials and access equipment in place. Once this was done, the installation went very smoothly."*

**Specialist systems offer perfect solutions**

HACCP certified Rockfon® CleanSpace™ Pro was considered the perfect choice for the project. The range embodies high sound absorption (Class A) and highest fire safety (Class A1), ISO Class 4 low particle emission, and does not contribute to the growth of microorganisms. CleanSpace Pro is highly durable and will withstand numerous cleaning and disinfection regimes. It is available in a full range of formats, in semi-concealed and visible grid options. It also demonstrates humidity and sag resistance up to 100% RH with no visible deflection in high humidity.

The ceiling tiles were installed into a Rockfon, Chicago Metallic T24 Click D2890 ECR grid. The grid components and accessories of this specialist system all meet the highest-Class D corrosion resistance protection requirements of EN13964.

**"The work really has made an amazing difference"**

The maximum $T_{mf}$ measured at the pool prior to the new ceiling being installed was 3.46. Once the Rockfon ceiling was in place, this reading was dramatically reduced to 0.93, well within the 1.5 target adopted as a maximum permissible level of reverberation for the Puddle Ducks teaching pool.

James Shaw, Senior Consultant at Hepworth Acoustics, *"It is clear from the results above that a significant improvement has been achieved. This is consistent with feedback from staff who use the pool."*

Rachel Bateson is the Puddle Ducks Manager at Barons Quay, *"The pool was opened in August 2021 and we are extremely proud of the facility. Customers loved it but, as numbers increased, we began struggling with an echo in the pool hall which was becoming disruptive. Since the work has been done, the difference has been incredible. Teachers love the change – they are no longer having to strain their voices and are finding it much easier to communicate with parents and children. Customers have also reacted positively, telling us that lessons are a much calmer and more enjoyable as a result. The work really has made an amazing difference."*