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Children`s University Hospital - Dublin

The Children`s Hospital was first established in 1872 and offers acute paediatric care for children. Every year Temple Street treats 145,000 children from all over Ireland, 45,000 through the Emergency Department making it one of the busiest in Europe.

This beautiful old manison, now one of Dublin`s most recognised buildings has been in continuous use as a Childrens Hospital since it first opened it`s doors in Temple Street in June 1879. The seven major specialities at Temple Street today include neonatal and paediatric surgery, neurology, neurosurgery, nephrology, orthopaedics, ENT and plastic surgery



Temple Street Hospital Facade

Summer Conditions

On the upper floors of the building summer temperatures on some of the wards with long rows of windows, and within individual patients rooms can rise significantly and these spaces can become uncomfortable for children and family members as well as staff. Over time a requirement for cooling to aid patient comfort had been identified.



Private Room with half round Fabric Duct Flexible ergonomic requirements.

These rooms have been designed to be flexible, to accommodate different numbers of patients with differing needs to suit the space available. Beds can be placed in a variety of positions and numbers to adapt to the situation and the hospital were very clear to the appointed HVAC Contractor - Crossflow Air Conditioning Ltd of Dublin that any solution had to accommodate the flexibility of the room layout, because patients or family could be placed anywhere within a room draughts in any part of the space would be unacceptable.

Padraig Hanvey of Crossflow told us...

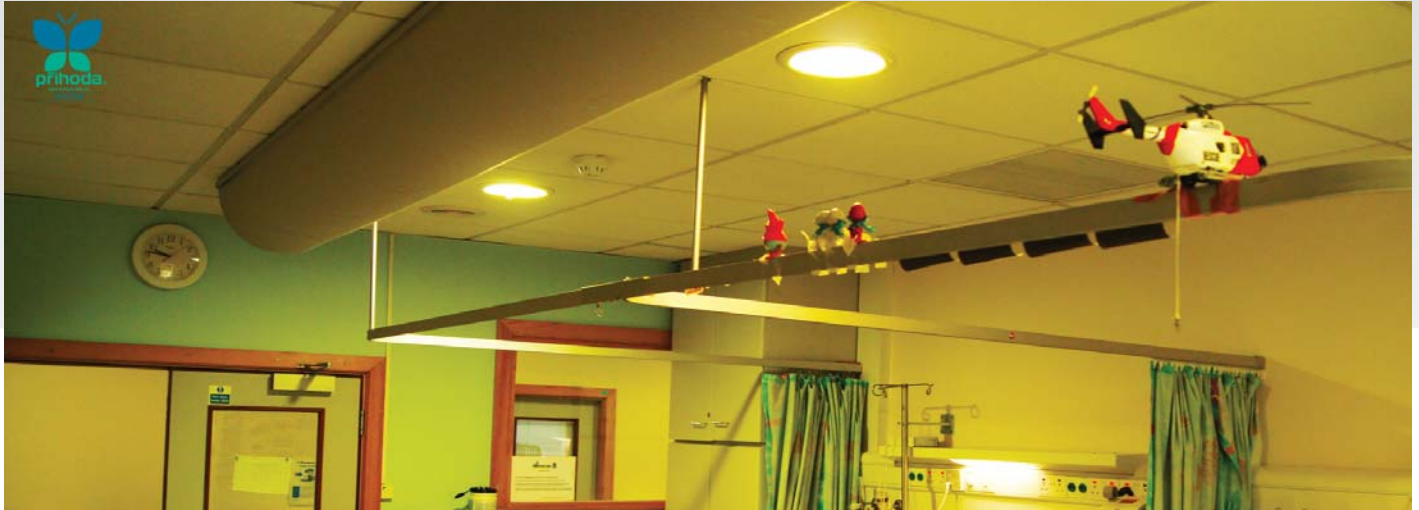
We do quite a bit of work for the hospital & we`re keen to get things just as they want them. We looked at various different options but the high heat gains led to quite a wide temperature difference. Each time we looked at traditional grilles the velocities created caused us some concerns.



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Light grey duct against light grey ceiling tiles.

Fabric Ducting

Crossflow Air Conditioning and Prihoda UK Ltd have completed several projects together over the years and Padraig thought that this project might be well suited to Fabric Ducting so he sent over some information along with his concerns regarding velocity and comfort for our comments



Designed to blend into the room

The Air Movement Solution

The cold supply air is fed into the top of the Half Round fabric ducting so that no visible connection can be seen. The duct is made from a permeable material so that the cold air exits through the material creating a film of air around the duct, this allows cooling below dew point without condensation occurring. The air also finds its way through tiny 0.2mm microperforations which have been laser cut all over the duct. This allows the duct to deliver a very precise air volume and maintain an accurate system pressure and to maximise efficiency. The microperforations also assist in ensuring dust doesn't build up too quickly on the inside of the duct. Looking at the air velocity graphic on the next page, created for this specific project, we can see that the air is no more than 0.17m/s velocity 1000mm below the duct. Velocity and condensation issues - solved.

Anti-bacterial Action & Cleanability

One of the other major benefits to the hospital in selecting this specific product is the ability to remove the duct and clean it easily in a domestic washine machine. This and the Anti-Bacterial (Impregnated Silver) properties of the material itself make for a very hygienic air delivery solution in a hygiene sensitive environment.

Prihoda Guarantee the Anti-Bacterial efficacy and the material itself for a standard 10 year period.



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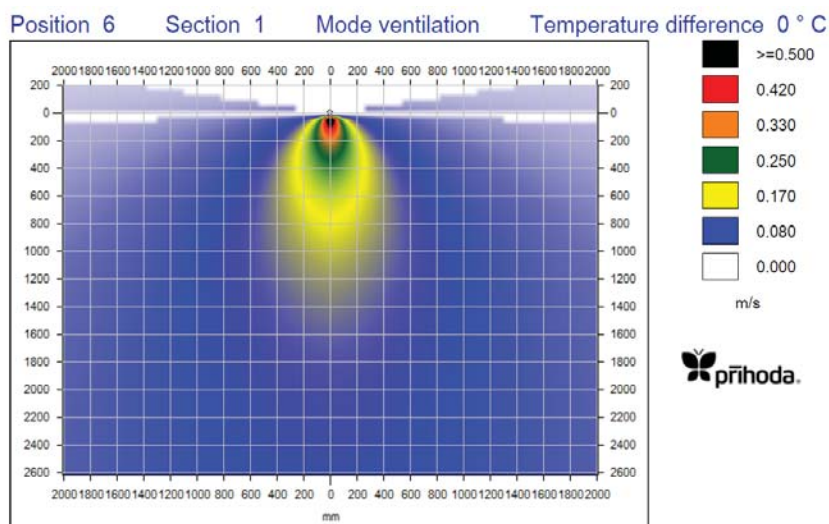
Sustianability

Also of interest to CrossFlow Air Conditioning Ltd and the Hospital was the ability to specify and install a genuinely green product. The Fabric used in making these Fabric Ducts is actually made using polyester which has been 100% recycled from used plastic water bottles. These ducts are genuinely post consumer recycled. The Water bottles once collected are chipped, then melted and filtered to produce the plastic required to make the fibres of the duct. This process uses absolutely NO virgin material and also saves on water, energy and Greenhouse Gas emissions. Additionally the duct creates a virtuous circle as the recycled material, once redundant can itself be recycled once again. This project was calculated to have saved 337 plastic water bottles from landfill.

Flame Retardant & Cleanroom Standard

Also of great importance to both the Hospital and Crossflow Air Conditioning Ltd was the reaction of the material during a fire.

Prihoda Fabrics have been extensively certified over the world and in Europe we have a test that covers fire spread as well as smoke production and (very importantly) moulten flaming droplets. The fabric used is Flame Retardant, produces low amounts of smoke and NO flaming droplets it is hard to ignite and self extinguishes once flames are removed. An extremely safe choice of material. Additionally it was important to ensure the duct itself didn't add material to the room in the form of shedding fibres - The Prihoda material chosen is also cleanroom non shedding standard to ISO4



Actual Air Velocity Graphic for this project



Cooling above the nurses station



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Nurses Station Cooling

With Thanks....

To Temple Street Children`s University Hospital for allowing us to take photos and use this project to discuss our product and the problems it solved in this application.

Our thanks to Crossflow Air Conditioning for specifying Přihoda and for facilitating this Project Profile



Přihoda Low Velocity Fabric Ducting