Peutz: impressive experimentalists

Peutz is an engineering and consultancy firm specializing in acoustics, noise control, vibration technology, building physics, sustainable building, wind and environmental technology, safety, working conditions and pyrotechnics. Peutz still has its headquarters in Mook/Molenhoek near Nijmegen, two other Dutch locations in Zoetermeer and Groningen, as well as locations in various European countries.

Presentation

Ir. Ferry Koopmans, CEO at Peutz

"We are real experimentalists," says CEO Ir. Ferry Koopmans. "By running experiments in our laboratories, we test empirically if what we as engineers have come up with and calculated, will actually work in practice. We have our own acoustic, building physics and climate laboratories, a fire safety lab and a wind tunnel, making our firm unique in Europe and beyond. This in turn means that most of our projects can be niche projects."
Peutz was founded in 1954 as 'Ir. V.M.A. Peutz, physical engineering, Consultant Engineer', when Victor Peutz, a physical engineer from Delft, arrived in Nijmegen. In the early 1960s the agency was involved in the construction of the Faculty of Mathematics and Physics at the university. Victor Peutz' father, Prof. Ir. Frits Peutz, was the building's architect. The newly-built Nijmegen Faculty of Science was an important factor for the first growth of the consulting firm.

Currently over 200 people are employed by Peutz in 10 locations in Europe and they are known the world over for their consultancy in building physics, acoustics, fire safety and the environment. Ferry Koopmans: "We closely follow developments in society, link these to our experimental research and try to find solutions to current issues. We invite our clients to networking days with themes such as 'Beyond the crisis. Can we build and do business freely within new frameworks?'. We stir up discussions, looking for solutions. A programme on 'Industry and building noise' fits in with the improving economy, especially with issues such as increasing nighttime manufacturing. Other themes are 'Who dares to take the risk of storing dangerous substances?' and 'Living and working in safe and unsafe areas.' For themes such as these we are both technical researchers and strategic thinkers, advising companies and governments and looking for the best opportunities for coordination."

Airflows and vibration-free areas

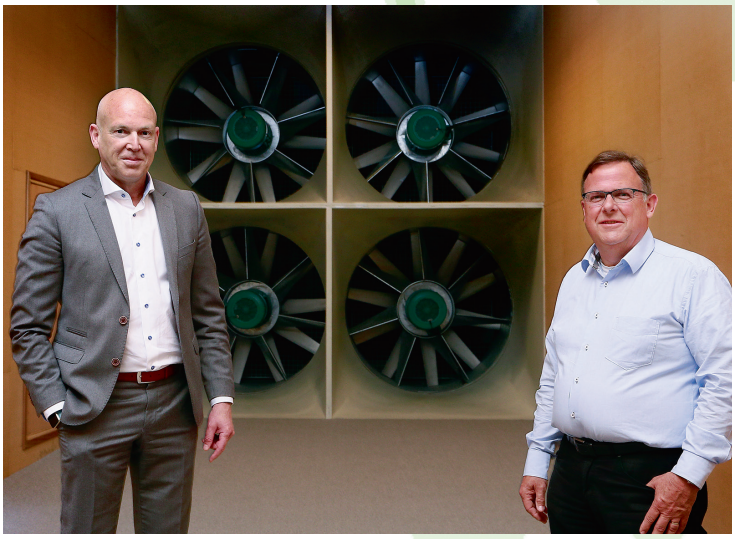
Ferry Koopmans gives examples of challenging projects: "Research into vibration-free areas in hospitals, cleanrooms and nanolabs. For various academic nanolab and research institutes we have been called upon for vibration-free installation of equipment. In the design of rooms even the smallest vibrations caused by trains, buses or low-frequency sounds, for instance, need to be prevented."

Polluted air causes indoor climate problems. Peutz comes up with solutions. "We model and calculate airflows, research the operation of technical installations and give design and modification advice. For Radboudumc we researched the air movement, air quality and exhaust gas flow when an air ambulance helicopter lands or takes off. In our wind tunnel we had already built a model of UMC Groningen to simulate various wind speeds, wind directions, and the arrival and take-off of the air ambulance. We were able to demonstrate how and when the exhaust fumes were able to enter the hospital and how they spread. Combined with measurements from inside the hospital we predicted which concentrations of exhaust gases would accumulate. Based on these findings the air grilles were moved. Our findings and forecast models are a guideline for planning heliports and emergency power systems."

Wind tunnel experiments and fire safety

Ferry Koopmans continues: "For the realization of public buildings and offices it is key that visitors and users feel at ease. Important factors are ventilation, thermal comfort, fire safety, experience of sound levels, use and control of natural light and

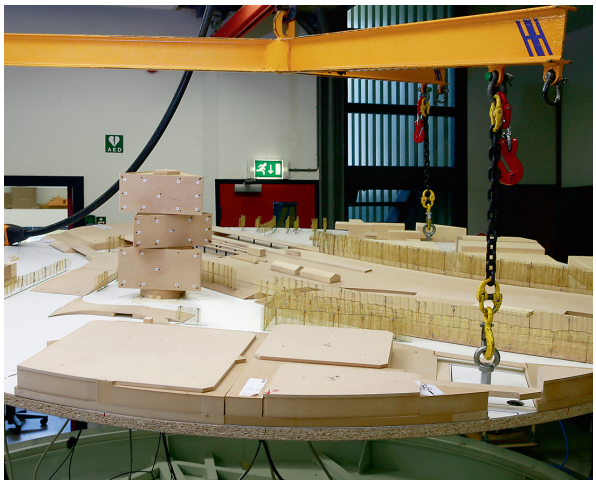
the colour experience, all factors we can calculate, test and forecast. We conduct research into fire-safe car parks and road tunnels, relying on aspects such as use of fireproof materials, a proper ventilation system and compartmentation. Another example is research into the safety of facade panels and outdoor ceilings. We have developed an effective test setup in our wind tunnel that we can use to determine the influence of wind load and suction effects on this type of constructions."
For the Rotterdam Market Hall with its enormous and striking glass facades at both ends, Peutz carried out various modelling calculations and wind tunnel tests. Because this high building could possibly create a serious 'chimney effect', Peutz carried out intensive research into the fire safety both for visitors of the Market Hall and for nearby housing. Ferry Koopmans: "We can respond quickly to current issues, for example the wind and fire safety of festival tents, the wind microclimate around large buildings like the WTC Utrecht and living safely close to the chemical industry."



CEO Ferry Koopmans and Albert Alders, Senior Advisor wind technology

Dutch standards for wind microclimates

"For industrial companies Peutz researches issues like the influence of sound on the surroundings and environmental factors. We also take care of permits. In a slightly provocative way we raise social themes, such as during a recent meeting titled 'Environmental zoning, administrative plaything or business safeguard?' Businesses have been forced to put on the brakes for quite some time because of the crisis. Now the economy is picking up with highly dynamic results. The government has rather ambitious plans for environmental legislation, but are they compatible with current developments in the business world? Take issues like air quality. The existing calculation models in this field are simply inadequate. Peutz has developed a wind tunnel model that allows you to predict the level of air pollution to the nearest microgram. Large cities like Amsterdam, Utrecht, The Hague and Rotterdam have asked for advice in solving their inner-city air quality problems. We are extremely knowledgeable in the field of wind microclimates. In the late 1990s we laid the foundations for the Dutch standard for wind climate NEN 8100 *Wind nuisance and wind danger*, based on our expertise and experience."
In the field of acoustics Peutz is also internationally renowned. "In 1975 we introduced the phenomenon of variable acoustics, which allowed us to make the acoustics in concert venues suitable for multifunctional use. In theatres such as the Casino in Den Bosch, Theater de Spiegel in Zwolle and the famous Centre Pompidou in Paris we were able to improve the acoustics by researching and making use of special materials and acoustic clouds and baffles. In Nijmegen we were involved with the renovation of theatre De Vereeniging and pop stage Doornroosje. The Tonhalle Düsseldorf is another special project, where architectural esthetics and acoustic functionality have been brilliantly combined. The Amsterdam Concertgebouw with its world-famous acoustics is also a Peutz project. You need to be able to speak the language of all of the building's users. For the new National Military Museum we researched the damaging influence of light on valuable museum pieces, and whether the amount of light was sufficient to display the collection to its best advantage. Engineering with a human touch. Much of our work has to do with experience and empathy. Someone once described us as 'nerds who love ballet'. I couldn't have put it better," smiles Ferry Koopmans.



Model of a location with buildings is lifted into the wind tunnel

Internationalisation

After the oil crisis in the 1970s, Peutz opened its first foreign offices in Paris. This was followed by locations in Düsseldorf, Dortmund, Berlin, Lyons and Leuven. Offshore safety turned out to be another discipline well-suited to our expertise and international projects. "Offshore safety revolves around issues such as the wind load of oil platforms and drillships, the stability of cruise ships, the flight safety of helicopters, explosion risks and fire safety. Our research and calculation models are put to work for clients worldwide, whether that's China, Scandinavia or America. We also have all the expertise you need on sustainability: sustainable energy use for equipment, sustainable building, conceptual designs of climate installations. The majority of our R&D activities take place in Molenhoek, due to the location of our labs there, which all our offices make use of. Peutz has employees from many universities with a range of degrees, such as aerospace experts from TU Delft, planners from the University of Groningen, mechanical engineers from TU Eindhoven. Projects demand a large diversity in disciplines and the right setting for specialists. We carry out integrated projects with a high level of specialist depth. We have the right people for that!"

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