

ROC Friese Poort leads the way with the Sustainable House

# "In search of the optimal energy mix"

**ROC Friese Poort wants to train the professionals of the future.** This is happening within the Center for Sustainability (Centrum Duurzaam), which gives sustainable developments in the professional field a place in the curricula of all ROC Friese Poort branches. The beating heart is the Sustainable House (Duurzaam Doen Huis) in Leeuwarden, where students work with the latest technologies in the field of sustainability.

**T**he Sustainable Center is the result of looking beyond the walls of ROC Friese Poort. What is the future of business? The answer was clear: sustainability.

A few years ago ROC Friese Poort gave this topic a place in the regular teaching programs under the flag of the Sustainable Center. →



### **Lifelike education**

"Within the Center for Sustainability, we offer lifelike education in construction, ICT, installation and electrical engineering," says Roeland Westra, project leader at the Center for Sustainability. "There is a great discrepancy between what the business community asks for and what many courses offer. We narrow that gap by having students carry out real-life projects. Also for the business community itself."

As a teacher, Mark Vos sees what this form of training does to students. "You notice that they are often much more motivated to make something of it when they do it for companies, than when it's just homework. An assignment for a company is exciting. Then there is a motivation to it". The aim within the Sustainable Center is to teach students not only technical craftsmanship, but also social craftsmanship and entrepreneurship. Westra: "This is how we develop the students of today into the professionals of the future." →

### Real installations

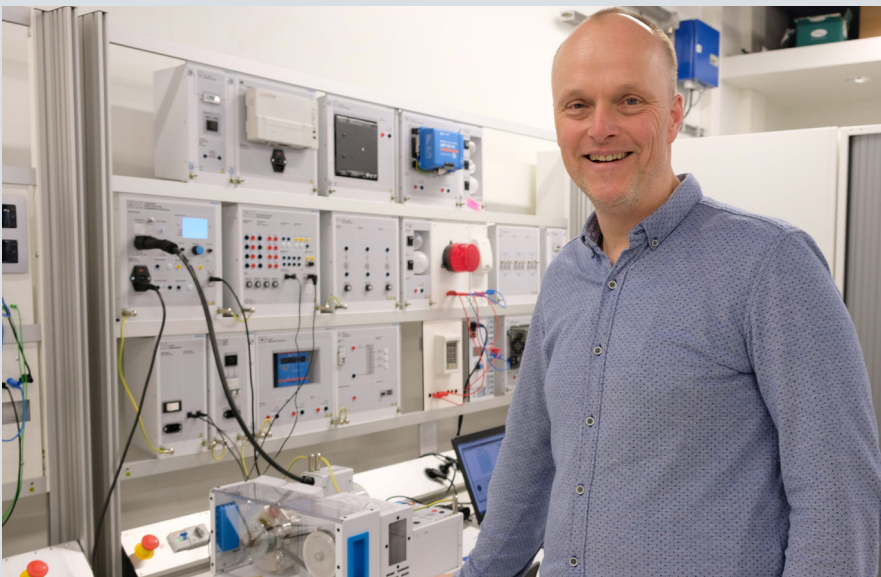
An important pillar within this story is the Sustainable House (Duurzaam Doen Huis). It's a huge workspace with high-tech devices. Each installation has a QR code. The students scan them and get work orders on their phones that they can execute. The practice room is a learning playground for many students. After two years of learning basic skills in workshops and studying a lot of theory, they can practice in real installations in the third year with all the knowledge and skills they acquired.

There are all kinds of devices that can contribute to sustainability within homes and buildings. A pellet boiler, a heat pump, but also a solar panel and wind turbine, plus a power storage device. The latter three were developed by Festo and are a "discovery" of Vos. "I went to a Festo Innovation Tour nearby and saw several new learning systems there. Some were on wind and solar energy, as well as energy storage. I immediately knew: this didactic story must not be missing in our education. We are now the only ROC in Friesland, Groningen and Drenthe that have these systems, and one of the first in the Netherlands."

### Small power plant

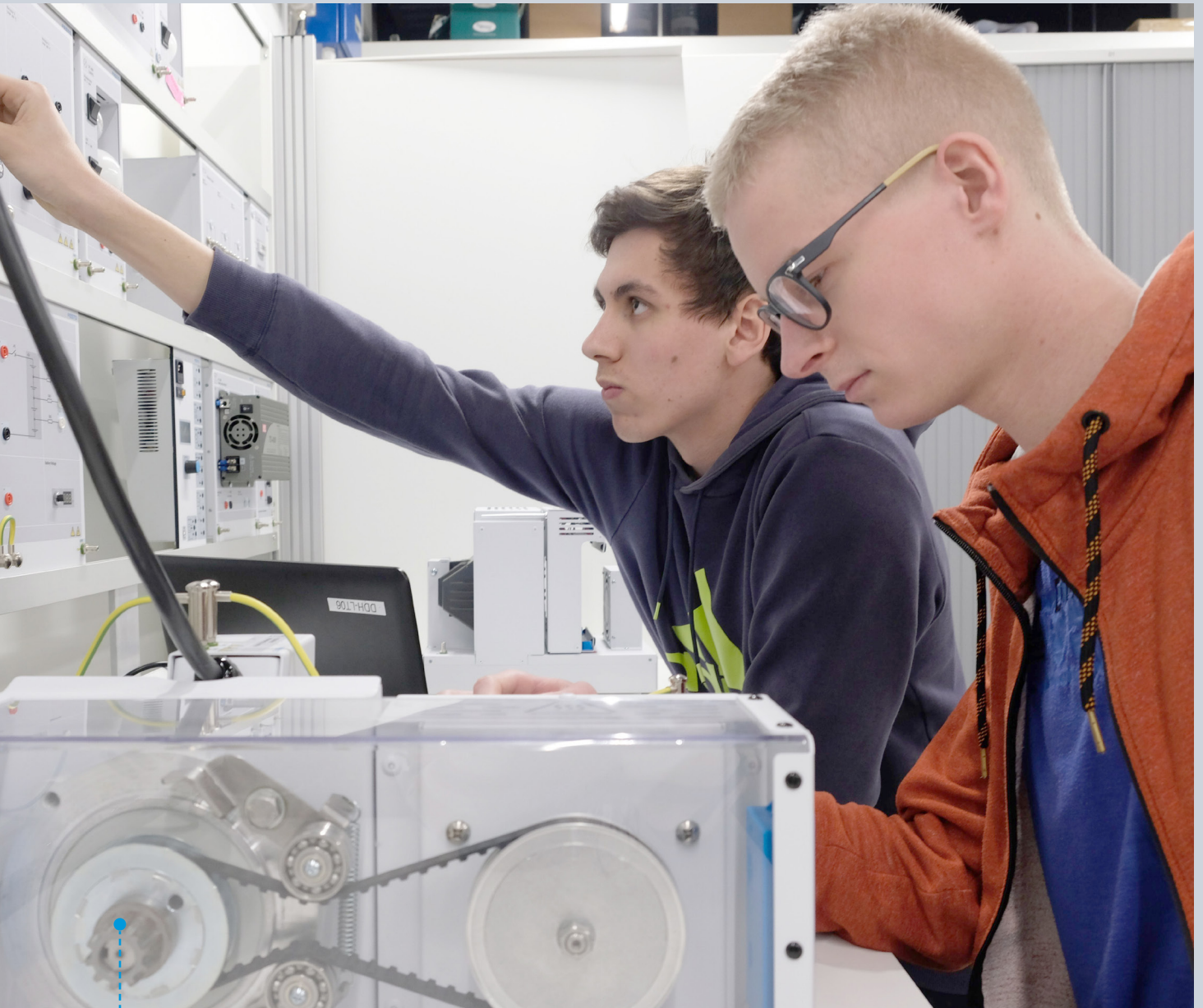
It took several months to master the operations and the material, but now students can get on with it. They first get into the panel, and then they put them into operation. Vos: "the solar panel is pretty compact, but it does work like a regular solar panel. They learn how to install them in series or in parallel, and what kind of consequences it has if shadow falls on it. At some point, they need to indicate the temperature of the panel, first without a fan, then after forced cooling. Then they draw the conclusion: at what temperature is there the highest yield?"

Another device simulates the operation of a wind turbine. It's actually a small power plant built within the walls of the Sustainable House, both a DC and an AC power grid. "That's also interesting. All the devices work at the same voltage, while we use alternating voltage everywhere. That conversion costs energy, so is that still the best approach? We're going to let students think about these kinds of things as well." →



**Mark Vos:** "Thanks to these installations, students get a real deepening of their knowledge."

The practice room is a learning playground for many students.



A compact wind energy lesson setup featuring TP 8012 Wind Power from Festo Didactic

“You notice that students are often much more motivated to make something of it when they do it for a business, than when it's just a homework. A contract for a company is exciting. Then there's a motivation to it.”

Mark Vos, Coordinating teacher at the Sustainable Center



**Roeland Westra:** "There is a great discrepancy between what the business community asks for and what many courses offer. We reduce this gap by having students carry out real-life projects."

### **Broadening the vision**

Create a broad view and ensure that students have enough know-how to work with a mix of renewable energy generators, that is the goal. "Nine out of ten people say 'putting solar panels' when you ask them how to make a house more energy efficient," Westra knows from experience. "Okay, nice, then you'll have energy. But then? It is only part of the solution. It starts with insulation, and then it follows with the external actions. We take the students along in this topic. They are ultimately learning to draw up a plan that will lead to the optimal energy mix. It is tailor-made for every house and building."

Most students like getting started in the Sustainable House. "There are all sorts of installations and everything is working perfectly. They like that" says Westra. Vos complements: "The curriculum is very suited for students who are learning and who are interested in doing in so. These panels challenge them, but they're easy to use. They'll get a real deepening of their knowledge through these formations."

According to Westra, the learning systems have another advantage. "When there were some installers here to tell students about their work, I asked them when they entered: What do you think of this work room? I got the reaction that all the technology is visible here. With customers, everything has been worked out behind the wall or the ceiling, but here you learn what it looks like behind walls. That's valuable."

### **Spark curiosity**

Because it is such a complete practical space, it is also popular with the business community. From financial advisers to hair-dressers: interest in sustainable solutions is growing in all sectors. Westra: "We can teach people here how to preserve a building. By the way, you don't need technical knowledge for such a workshop. Here, people can experience different sustainable techniques, see how the devices work, and see how much savings can be achieved using the QR code. You can make good choices. The students always go out with a first idea to make their own home a bit more sustainable."

Ultimately, of course, it is about the students. To provide them as much baggage as possible, so that they will perform well later on in the field. "You want to get them into the classroom," says Vos. "That they are really driven to know more about it. Learning basic skills and theory is necessary. But here, in the Sustainable House, we can notice: we really make them curious." ■

### **About ROC Friese Poort**

- Dutch educational institution
- Founded in 1994
- Vocational education vocational training for young people and adults
- Enrollment of approximately 15,000 students
- Headquartered in Leeuwarden, Netherlands with other locations
- Website: [www.rocfriesepoort.nl](http://www.rocfriesepoort.nl)

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