

# Access technology at the base of Leidschenhoof assisted living facility

Leidschenhoof, in the eastern part of The Hague, is one of the most modern assisted living facilities ever built in Holland. It looks a little bit like science fiction from the sixties, in which buildings take over total control. It's not that bad, but the truth is that the building's automation has been implemented to the extreme. This has been done to relieve the staff capacity as much as possible, as this is always scarce in the health care sector. Almost all of the management technology revolves around the electronic access control system that is based on Nedap AEOS.



During the final stages of construction, one can clearly see how much technology Imtech Care & Cure is installing at Leidschenhoof. The apartments that are still empty today contain an unprecedented number of sensors, for a home at least. This also applies to the central public spaces and hallways that even have loop detectors in the floor in front of some of the doors. One thing that stands out is the lack of cylinder locks. All doors and even the mail boxes, all equipped with Nedap Mifare LoXS, are operated with electronic Mifare access badges.

WoonInvest, a housing corporation from The Hague, commissioned the construction of the facility - that was initially to be called Leilinde- and realized it in cooperation with the tenant, WoonZorgcentra Haaglanden (WZH).

The assisted living facilities accommodate 64 nursing home spaces and 110 apartments for extramural care. The top layers consist of seventeen rental apartments. Furthermore, the buildings accommodate pre-school playgroups, a general practitioner, a pharmacy, a physiotherapist and an office for youth and family. Underneath the premises, there's a parking garage for 350 cars. In reality, the care facility doesn't need this, but the construction permit prescribed that the facility had to comply with the standard of 1 to 1.2 parking lots per home, says construction director Martin van Dijk. The parking garage is now used at a charge by personnel, visitors and clients of the nearby shopping mall.

### Facilities

The first three floors are meant for psychogeriatric clients who need continuous care. The fourth floor offers disabled people the possibility to live independently, while the fifth floor is meant for residents who are basically all right, but want to be able to call for supportive care any moment they want. All the technical facilities that are needed for this have already been installed in the homes, so that the functionality can be adjusted easily according to the need for care. "With their badge, care providers get access to each home after permission from the resident or in case of emergencies. The residents can give such permission through the nurse call system", says Frank Koppers of Imtech Security Solutions. Every employee, regular visitor or resident has an electronic means of identification. This is usually a badge, but in the case of psychogeriatric clients it can also be a tag in their shoe that ensures that they stay within their department when they are not accompanied by care providers or visitors. If someone continues to hang around a blocked door, a message is sent to the DECT telephone of the employee on duty, who can initially communicate with the resident via a video

intercom system. Unfortunately, the DECT telephones do not show video images yet, but they do have a display that shows information about the resident and the location. As a matter of fact, these telephones, that are shock-resistant and dust and waterproof according to IP65, also play an important role in the case of a possible evacuation. Koppers adds that they have deliberately decided not to use PDAs, because these couldn't stand up to the daily use in the assisted living facility.

## Manageable

The whole premises are keyless, which has a lot of advantages, says Jos van Nederpelt of Nedap Security Management. "Care facilities like Leidschenhoof often have to deal with a large turnover of residents. This makes it difficult to keep mechanical locking systems manageable. With an electronic system it doesn't matter if people lose their badge, or forget to give it back when they leave. The security doesn't depend on whether a badge is returned or not."

The person who came up with the idea of the system is Mr. Van Dijk, who runs an independent consultancy firm and has been hired by WoonInvest as the construction director. He has been working on the project for three years and got his ideas while visiting domotics trade fairs, among others. But he noticed that it wasn't easy to find a suitable supplier. "Everyone delivers parts of what I need, but I was looking for a company that can deliver everything in the field of domotics." Contacts with the first supplier failed. Van Dijk says: "They promised many things and did nothing. So seven months ago Imtech was asked to take over the job." "They are doing all of the domotics and telecommunications", emphasizes Koppers. "There is an EIB network (European Installation Bus) through the whole building that connects everything that uses electricity. Every lamp and every switch is addressable. When Mr. Jansen calls a nurse, the lighting is automatically switched on and the door is unlocked. The sun blinds and the complete climate control are also connected to the system. And if someone rings the bell downstairs, the resident can see on his television who is at the door."

## Fire safety

Naturally, the assisted living facility pays a lot of attention to fire safety. After all, it houses people who are not able to bring themselves to safety when there is a fire. In case of a fire alarm, all doors are automatically unlocked, also if the central system would fail. Fire doors are closed so as to stop the spread of fire and smoke, but they are not locked. Fire fighters can see at a synoptic panel at the entrances exactly where the fire is. In the fire safety box on the outside, they can find a badge to open all spaces, including the mail boxes. Unfortunately, due to privacy issues, it is not possible to use the system to track if there are still people inside the homes in case of a fire.

Several intelligent techniques have been used to increase the residents' safety and comfort. One example is a sensor that gives an alarm to the care provider when one of the residents falls out of bed. At the same time the lights are turned on. At a large number of general doors it is possible to use active Nedap tags, so that residents with a rollator or wheelchair don't have to carry out daredevil feats to open a door. It's the first time that the long distance reader of Nedap, the Transit Entry, is being used for such a purpose. The parking garage makes use of a speed gate, which can tell from the badge that is used whether someone is driving a car or riding a bicycle. When a cyclist approaches, the speed gate opens only half ways. From the parking garage it is only possible to go outside or to the central hallway. From there, a visitor can take the elevator that automatically stops at the floor that has been programmed on the access badge.

## Cost recovery

Part of the investments is recovered by making use of energy saving technologies. For example, the climate control is connected to a weather station and a time switch. The weather station also measures the intensity of the daylight. Based on the measurements, the heating, cooling and lighting are operated. The heating and cooling takes place via the floors, that are kept at a constant temperature of about 22 degrees Celsius, where possible. Through balance ventilation that has been



installed in the ceiling, the residents can raise or lower the home temperature by 3 degrees Celsius. In the summer, the excess heat is stored in the ground, to be used again in the winter.

According to Van Dijk, the project has generated a lot of knowledge that WoonInvest will also use in future projects. Currently, a similar facility is being built in Zoetermeer, for example. With this project even more savings can be reached, as the whole data infrastructure has been made of fiberglass. This saves a lot of space for the cabling, which in turn offers advantages for the construction of the building. Additionally, more and more components will be realized wirelessly. "Fiberglass requires a higher initial investment", admits Koppers. "But the costs will be recovered over time, because fewer energy-wasting technical spaces are needed."

The suppliers and the initiator are both positive to have created something new with Leidschenhoof, and to have gained valuable experience. Since the investment in knowledge and new technology can be spread over several projects, it was possible to go further than usual. Although Van Dijk warns not to exaggerate. "The residents still have to like it. If at one point the curtains will close fully automatically, people will get the idea that they are locked up. You have to strive for a pleasant environment, with a good balance between efficiency, comfort and safety. An additional advantage of this is that people will be less irritated, as a result of which the use of medication, especially by psychogeriatric clients, may be limited."

## Project Facts

Project:	Leidschenhoof, Den Haag
Initiator:	WoonInvest, Voorburg
Advisor :	Imtech
Solution :	Nedap AEOS, Nedap LOXS, Nedap TRANSIT