



Window cleaning at Frankfurt Airport Terminal's 2 swing shift

Modern architecture often requires spectacular access techniques and technology when it comes to keeping it clean. Industrial climber Uwe Piur and his team work with ropes and rappelling gear to get to places normal window washers can't reach – high above the ground like the glass facades of the main check-in hall at Frankfurt Airport.

■ He was actually in a hurry to catch the connecting flight to Hannover at Frankfurt Airport's Terminal 2, no time to spare. But as the businessman from Ireland steps out of the Skyline shuttle between the two terminals, he forgets all about being in a rush. He's in his mid-fifties and slowly pulls out his camera from the carry-on, his eyes wide and locked on the three men dangling from ropes

in front of the terminal's huge glass facade. "Amazing, how these guys do it," he says, never taking his eyes off this unusual window cleaning crew. "No way you could ever get me up there!" Cleaning professionals rarely evoke such admiration, but gaping passers-by are just part of business as usual for the team around Uwe Piur, owner of Mühleim-based PIGO Extremtechnik, a small

company specialized in industrial rope access, particularly in window cleaning high above the ground. As industrial climbers, Uwe and his team are up in the air virtually on a daily basis. On this particular day they are 25 m (75 feet) above the ground, cleaning the 700 m² (about 7,500 square feet) or so of glazed surface at the front end of Terminal 2.

The glazing consists of 100 glass panes, each one of them 4 m (12 ft.) long and 1.8 m (6 ft.) high, that are fitted into the steel beams of the hall structure. Piur and his teammates Marcus Freiheit and Merlin Czarnulla start from the top and work their way down, dividing the job into 12 lanes. Lane after lane, they spray water and cleanser, wash up, wipe down, and polish for a sparkling finish. It takes the crew about 20 minutes per pass. To get back up again to the topmost pane, Uwe Piur rigged a fixed line that runs horizontally across the steel frame at the top end of the facade. It is to this rope that Piur and his staff secure themselves as they move along the steel girders to get to the next lane. Once there, they hook up the two working ropes, the ones dangling from the side, to the horizontal line - this way they are secured at two separate points. Next, the climber clips his descender to one of the ropes and a rope clamp to the other. The redundancy of this system guarantees maximum security: if one safety fails, which is practically impossible the way this is all set up, the second one takes over.

Each one of the men wears personal protection gear that is specifically designed for rope access specialists. The key element is the harness together with the rappelling and securing gear attached to it. Everything that's needed to actually clean the windows is also hooked up to the harness - it all must be carefully secured with

PIGO Extremtechnik

"We work in places 'normal' window cleaners can't reach," says Uwe Piur. "Instead of being competitors, we're actually more of a complementary service." Industrial climbers who are active in the cleaning segment only do window cleaning.

The 100,000 m² (just over a million square feet) of glazing Uwe Piur and his 12 associates keep clean every year account for 80% of their order book. The balance is made up of restoration work and lightning rod installations on church steeples, steel frame inspections and maintenance, hanging up outsized posters, and other commercial assignments that can't be taken care of any other way for practical reasons. One of them is that setting up scaffolding just for a day's work would be prohibitively expensive.

When Uwe Piur founded his company in 1993, he was the first in the western part of the country to offer rope access services - and he felt fortunate to be able to combine work with his private passion. Modern architecture and ever larger and higher glazing on buildings, which for visual reasons need cleaning on a regular basis, have since created a lucrative business niche that generates more income every year to grow the business and the team. "Lucky for us, buildings get designed all the time without a thought spared on the question: how are the windows going to be kept clean?" says Piur, "and the demand is just huge." Most of his orders come from the Rhine-Main area. Besides the airport, PIGO Extremtechnik also takes care of the windows of the State Central Bank in Mainz, the large glass facades of the My Zeil mall in Frankfurt and the famed Castor und Pollux office towers, to name a few of the major projects.



PIGO Extremtechnik at work on Frankfurt Airport's Terminal 2 glass front.

Photo: Squat



The team has every move down pat, working in perfect synchronicity.



Merlin Czarnulla swings into action.



After finishing one lane Uwe Piur carries his gear back up again for the next.

slings and long lanyards. Besides the squeegee and assorted cloths, this includes closed containers for water and cleansers. "We can't use any buckets," explains Uwe Piur. Water in a pail would just spill over, and it would be practically impossible to carry it across the glass front. "That's why we use garden hoses," says the 52-year-old climber, "they're perfect for the job."

The three climbers are swinging across the façade, spread out at roughly the same height above ground. What becomes obvious is that it's practically impossible to hang still, so to speak. So, to achieve a semblance of stability, the climbers must grab hold of a beam with one hand. At other times, a light toehold and lots of muscle tension have to suffice in order to ensure a proper wipe-down.

The team works in perfect coordination: Uwe Piur sprays water with some neutral cleaning solution onto the glass pane, Merlin Czarnulla lathers up the window, Marcus Freiheit then rinses the windows with clear water and wipes them down with a squeegee. Uwe Piur finally gives the glass a polish and then uses another cloth to wipe off the footprints from the beam. Next, he hits the switch on the rappelling descender and lets himself down a few feet.

Pros and cons of swinging

"The actual cleaning process is the same as everywhere else," Uwe Piur explains later on over a coffee break. But cleaning windows dangling from a rope "is still a whole other can of beans," and the only way to find out if it's something for you is to try it out. "The biggest difference between what we do and cleaning windows at ground level is the swinging. The fact that you're dangling up there makes it extremely difficult to apply pressure during the cleaning and the wiping because we have no leverage," says Piur. "That

means that the squeegee has a tendency to lift off, leaving streaks." That's not to say that dangling is all bad. It actually helps them increase their range of movement. "When I stand straight up, my reach to either side extends only an arm's length," says Piur. "On the other hand, by swinging over to each side, I can actually cover a huge area. But I have to tell you that it takes a while to get the hang of swinging and cleaning at the same time." And pretty strong muscles, too. Industrial climbers can grab hold of protrusions, beams or window frames, which makes the job easier and ultimately also decides whether or not cleaning with ropes is in effect possible to start with. "But there are limits to the swinging," says Uwe Piur. "With a completely flat glass surface, the highest we can go is 25 m or 75 feet because every single move actually pushes me away from the façade, and I have no leverage." That is why industrial climbers come to use suction cups to stay close enough to the wall to get the job done. On some buildings, like the tower of Deutsche Bank in Frankfurt am Main, for instance, using rope access techniques to do the cleaning is just not on.

PIGO Extremtechnik has been working at Frankfurt Airport since 1996. Terminal 2 has a total of 7,500 square meters (about 80,000 square feet) of glazed surfaces and the team is on-site twice a year. They also use rope access techniques to clean the large glass facade of the Skyline terminal; the other window areas have trolleys for window cleaning. Every five years, Uwe Piur and his team dust off the steel frame that supports the roof. With vacuum cleaners hanging from their belt, the climbers also rappel down to the free-hanging loudspeakers and give them a thorough wipe. Piur's customer for the cleaning projects at Terminal 2 is Frankfurt-based Wisag, one of the many large commercial building and facilities management providers that farm out work to PIGO Extremtechnik.



Climbing in the structural frame to the rappelling point.



Marcus Freiheit wiping down the glass panes.

Photo: Rauff

The biggest danger is falling into a routine.

When Uwe and his crew are up in the air, they get admiring looks and comments from passers-by down below or from office workers behind the windows they clean. "There is practically not one job we do that doesn't attract an audience," says Uwe Piur. And if you ask if he finds his line of work to be on the risky side, he has a simple answer: "The most dangerous part of our job is taking the car to get to the work site and back." The way our safety protocols are set up, it's impossible to fall. Still, there is one important potential danger and that's to let a sense of routine creep in. "We have absolutely no fear of heights," says Uwe Piur. "We work almost a thousand feet in the air the way other people work at ground level." But a little fear is good because that keeps you on edge, from becoming overly confident. The worst thing that can happen is to forget that healthy fear and let routine set in. You let off your guard and start making mistakes. That is why industrial climbers always do a buddy check. Every time they go to work, they first check and recheck each other's gear, making sure that the harness and safeties are ship-shape and that the ropes and slings are not damaged.

The biggest challenge with industrial climbing is not really climbing to the highest height, but to set up solid anchor points for the ropes. Very often, just getting that part right is the real challenge. Often enough steep and narrow church towers have had Uwe Piur climbing through a maze of wooden beams and drilling holes into slate roofs just to establish the safety points.

The Frankfurt Airport terminal features fire escapes and utility staircases, what they call service cores, which afford relatively easy access to the building's structural frame, facade and roof. Still, setting the safety points requires skills and experience: the first time

they had to get from the utility platform in Terminal 2 to the top beam of the glass facade, Uwe Piur set up a safety sling like the kind used in rock climbing. Once he got up there, however, one architectural detail made rigging the horizontal fixed line an order of magnitude more difficult: the top glass panes of the facade are not rectangular in shape but actually more trapezoid. The height variation between the left and the right goes from .5 (3 ft.) to 2 (6 ft.) meters - and it's at the end of these panes, at ceiling height, that the safety points had to be anchored.

In other words, crossing over on the topmost beam meant having to stretch to the very limit or attach the rope at a snail's pace.

Because each building requires its own specific approach, Uwe Piur prefers to "work with people that have a strong sense of safety and broad knowledge of securing techniques." Ideally, they bring rock climbing experience to the table.

This expertise forms the foundation on which to the thorough training as a rope access specialist, which is a prerequisite for starting to start work at PIGO Extremtechnik - that and the ability to solve situations on your own and quickly. People who don't come from natural climbing are just happy they made it up here and can deal with the height," says Piur. To those who do it, the job at hand kind of slides into the background. But customers don't really care about the climbing part. "What matters to them is to have clean windows, period."



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