How to Mend a Broken Heart

An old industrial hall at Eindhoven University of Technology has been given a new lease on life by Ector Hoogstad Architecten

Arthur Wortmann

Eindhoven University of Technology (TU/e), in the south of the Netherlands, was founded in 1956. It was designed according to the campus model. Large-scale faculty buildings were scattered across a park-like site, linked by footbridges. Everything had an industrial, modern and technical quality, in keeping with the nature of the academic programmes taught here and with an era of optimism and growth.

In the centre of the campus, at the intersection of all the footbridges, stood the building that was perhaps most iconic: the W Hall for the mechanical engineering department, designed by Jacques Choisy of the architecture firm of Sam van Embden, the university's master planner. Because its exact use was not yet determined at the time of construction, a flexible structure was required. As Van Embden put it: 'First I'll put a roof over a hectare, and then we'll see.' The W Hall was exactly that: a hall with a floor space of 10,000 m^2, with a modular construction, with a light load-bearing structure and natural light in abundance. The first floor of the immense hall was crisscrossed by footbridges. Anyone walking from one faculty building to another would smell and hear the machines, and looking down, would see men in overalls doing technical stuff.

The advent of computers signified a decline in the demand for workshops, however, and at the end of last year the hall was assigned a new function. Ector Hoogstad Architecten has transformed the building into what has now been christened the 'MetaForum', the beating heart of the university: a library with 1,000 study stations, service desks and a number of classrooms and offices. A section of the hall has become a covered exterior space, for use in special events. Like a cherry on top, a new faculty building has been set atop the hall, for the Mathematics and Computer Science department.

What was once an intersection of pathways is now above all a place of abode. With the addition of a basement, connected by voids with the higher storeys, the hall has become a spatially exciting environment, in which one can work but in which the countless sightlines also allow a dynamic atmosphere to predominate. It seems an exemplary marriage of tradition and renewal, of the acknowledgment of the value and the potential of what exists and the addition of a contemporary layer. What is even more remarkable is that Ector Hoogstad Architecten was awarded the commission for this project after submitting a 'presentation vision' based on demolishing the existing hall. In the proposals of the seven other architecture firms that took part in the selection process, the guiding principle was in fact the preservation of the W Hall. An obvious first question for architect Joost Ector therefore hinges on this issue.

When you were selected as the architect there were protests from various directions. A lobbying group was set up to place the W Hall on the list of municipal landmark buildings in order to prevent demolition, and six concerned architecture students campaigned against your vision under the name 'Whypod'. They felt that historic buildings in Eindhoven should be treated with more care. What impact did these protests have?
Joost Ector: I had several reasons for submitting that demolition proposal. First, you could easily read between the lines of the client's brief that the university was far from enthusiastic about preservation. The building was in poor physical condition and seemed an obstacle to the implementation of the Campus 2020 master plan. It would cost a lot of money to restore, and you could imagine that the TU/e board of trustees had little faith in the idea that this ruin could evolve into the future calling card of a university they wanted to put on the map internationally. As an architect you have to build a relationship of trust with a client, and you build the foundation for this

in the selection phase. So it seemed wise not to begin by advocating restoration. What happened at the presentation was very significant. When I showed the first images a wave of disappointment rolled through the room, because they thought they were dealing with yet another architect who thought the hall should be preserved. Only when they took a better look did they see that our plan had a different concept and that we had proposed a new building that followed the contours of the old one. You could feel the disappointment give way to relief.

Second, a university can only spend its money once, and preservation meant an extra outlay of about 10 million euros. That's money that won't go to teaching. That's a decision that deserves a societal discussion, in my opinion. The building should prove itself in that discussion.

I was also aware that at the time of the presentation vision there had been a dialogue underway for a long time between the city and the university. The city had endured a lot of criticism for what they had allowed in renovations of other TU/e buildings. They could not afford to get similar criticism again. At the same time the TU/e had certain ambitions for the site, which required the approval of the city. In short, a very complex crucible of forces was in play, and then you also understand why the university was not keen on an architect with a point of view that would undermine its bargaining position.

I thought: it wouldn't have taken much for an entirely different building to have ended up here. Without the protests it would have been demolished instead of restored.
No, no, that's an inaccurate assessment. I never seriously considered getting rid of the W Hall. I always saw our presentation vision as an intermediate phase in the whole process. Architecture is not just about a good or a bad idea. Other interests are involved, personal relationships, negotiating positions, the ambitions of other people in other positions in organizations. In an unorthodox way I did what I had to do, which got us the commission and resulted in one of our best works, which the TU/e is also very happy with. Everything fell into place. A straight line is the shortest distance between two points, but it is seldom the path that is actually followed.

Was Jacques Choisy's original design actually brilliant?
Whether it was brilliant I don't know. But what is good about it, in any event, is that that ambition to create an enclosed hectare with minimal means was carried through so consistently. There is also a joy of designing apparent in the ingenious way the building is put together.

What was left of the hall in 2006?
Everything, actually, only hardly any maintenance had been done in 50 years. And although the hall had been intended to be flexible, this turned out not to work out so well in practice. The idea was that intermediate floors could be suspended in the upper storey, to accommodate changing needs. But the height of the hall is actually just a little too limited to do this in a persuasive way. So it was virtually identical to how it was when it was completed.

When the decision was made to opt for restoration, what did you go for?
Naturally there had already been a great deal of speculation about how to go about that. There were people who said you actually needed to do almost nothing if you put the new programme in new volumes inside the hall. There were others who said that you should place a dome over the whole building. I thought both were terrible ideas. In my view, the essence is precisely in that thin skin that separates the inside from the outside. It gives the interior a kind of ethereal sense of space. The main challenge was therefore to make that shell perfect again, with minimal means. And because we felt that the dimensions and position on the campus had been devised just fine, we wanted to keep the roof in its integral state.

During the construction the building was completely stripped. In the end only the upright posts of the outer walls were retained, but the moulded sections that had been affixed to them were all sandblasted in the factory, retreated and put back into place. A sort of proto-double-glazing had

been used, glued into the grooves of the frames with asbestos-laced putty. That glass was replaced and fastened with new moulded aluminium sections. If you look at the outside of the building now, it looks the same as before, but it's something totally different. A major part of restoration is sentiment. The compromise lies in the fact that you try to reuse as many things as possible, discard as little as possible, and try to get as close to the original look as possible.

The stability of the structure was also improved, we put in higher roof elevations throughout, we completely replaced the glass strips in the roof, and the concrete slab on which the building stands was insulated.

What was your approach in the interior? Were the old and the new supposed to clash there, or form a whole instead?
Making the old contrast with the new was not possible here: the existing structure had too little substance. After all, in the interior there was nothing but columns. So we tried to resurrect the atmosphere of the hall, but with other means. Of course you don't smell oil anymore or see people in overalls, but you recognize the old building in the way you move across the footbridges and look down.

How do you create a library with 1,000 workstations?
First of all the building had to exude a gravitational pull that inspires people to want to use it like a kind of living room. Beyond that, practical matters come into play, like comfort and climate control. It is a place where people have to sit working in silence and concentration, and that makes one extremely sensitive to temperature, draughts, sound or whatever it may be, so everything had to be perfect. In addition, a whole group of people had to find their own place. Each person studies in a different way from another. And perhaps not everyone comes to that building to study, but in fact to take a look around or have a chat. So variety in spatial conditions was a prerequisite.

Moreover, the functions of study landscape and traffic hub had to be slotted into each other. In that respect the acoustics was the biggest challenge. Not just to resolve, but also to convince everyone in advance that it was all going to turn out all right. Even ourselves, because at first we could hardly believe the positive predictions of the computer models ourselves. In any case, absorbent materials were installed in all kinds of places and when you're on the lowest storey it's really amazing how little you hear of what's happening above you.

It was quite full in the first few months, I understand.
The TU/e has 5,500 students. In the planning the expectation was that the 1,000 work stations might be all occupied once during the week before an exam period. That was the peak for which capacity was calculated. In practice the occupancy level has proved consistently high. And that is of course what it's all about. If you want to form a community as a university, you have to bring people together and hold on to them.

Why did the Mathematics and Computer Science faculty have to be put on top, actually?
The idea is that all the faculties, in the future, will have their front doors along a green zone that is currently being developed, so that a concentration of activity will unfold on this axis. And this was actually the only spot that was still available.

And it made things complicated.
It made things pleasantly complicated. It didn't bother me, on the contrary. Diving into the depths with the basement and soaring up into the heights with the faculty building, the traffic hub acquired a third dimension.

The substructure and the superstructure are two separate worlds, more so than I expected.
They are in fact two different worlds. That mathematics community is very keen on quiet and concentration. They immediately imagined themselves sitting on top of that hotspot. They were

concerned about that, and that's why there is that division. There is also a simple fire-safety reason for it: the superstructure is not equipped with sprinklers, the substructure is, and you have to introduce that transition somewhere. In the cross section you can also see that the superstructure features a kind of double bottom, with classrooms on the lowest level. Only on top of this does the atrium begin.

You say the project is one of your most successful. Why?
All projects, aside from a functional side, also have something fun about them. I always call the office for the engineering firm IMd (*Mark* 37, p. 58) we built in a former steel factory a 'playground for engineers'. That's the way we like to think about our buildings, as sort of playing fields. Here in Eindhoven, it's not just about studying, about spoon-feeding knowledge, but also about interaction, meeting one another, seeing one another, realizing you're at the centre of the university community. The building challenges you to play the game in a new, more creative way. Although there are, of course, more prosaic reasons conceivable for its success, such as the presence of an extraordinary number of outlets where you can charge your laptop and smartphone. [Laughs]

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