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## Humanizing the High-Rise



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### Interviewee

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### Kim H. Nielsen

Kim H. Nielsen is founder and principal of 3XN. Since the start of the company in 1986, Nielsen has been the creative driving force behind 3XN. Nielsen directs the group with a high degree of personal involvement in each project. He has been involved in all of the practice's major projects, including the Sydney Fish Market, Quay Quarter Tower in Sydney, Copenhagen Arena, the Blue Planet Aquarium, Museum of Liverpool, Ørestad College in Copenhagen, IOC Headquarters in Lausanne, and the UN City HQ in Copenhagen.

### CTBUH 2017 International Conference

Kim H. Nielsen will present "Quay Quarter Tower: Humanizing the High-Rise" in the Opening Plenary: *Connecting the City: Sydney*, Monday 30 Oct at 9:00 a.m. and is also involved in Session 3F: *Density and Urbanity in the Sydney Context* at 1:45 p.m.

*The under-design Quay Quarter Tower will create a stunning new building on the Sydney skyline that sets new benchmarks in office tower design globally and creates an exemplary international commercial address. The antithesis of the prevailing belief that high-rises are generic and non-contextual, Quay Quarter Tower is the key to a newly activated public domain at Circular Quay – the front door to Sydney's CBD. Comprising a stack of vertical villages, breaking down the scale into smaller, more intimate social environments for social interaction and collaboration, the project is a transformation of an existing 1970s office block into a vision of the future of contextual skyscraper design. CTBUH Editor Daniel Safarik spoke with the lead designer, Kim Nielsen, of 3XN Architects.*

**Your scheme for the Quay Quarter Tower was selected through an international competition. What kinds of concerns or challenges from the committee needed to be addressed before the project was awarded?**

It was a two-stage competition, with six teams selected. We had a mid-term review where they went through our sketches and models. Today the north side of the tower (facing Sydney Harbour) is a bus station with a series of lay-bys, and not much of anything else is happening there. What was important for the client and for the city even more so, was the notion that this would not only be a tower landing on the ground and leading us back to the city. It should also activate and animate the whole area. That was a key point in our design from a master plan point of view.

**What do you think was the main selling point of your design?**

There were a number of things. In the kickoff meeting for the competition, where there were 20 to 30 teams in the room, the client showed us pictures of several buildings that they liked. We recognized some of our own in

the group, so we had some idea of the direction to take. We took the client around to some of the buildings we have done.

One of the buildings we showed was Saxo Bank in Copenhagen, which is not a tall building, but has many characteristics the client was looking for in a head office, such as an open atrium and big staircase that unites several parts of the building together (see Figure 1). We thought about taking that concept and stacking it up into a high-rise [for the Quay Quarter project]. Then, we twisted the five stacked sections so that each had the best view for its height, and so that each has its own six-floor atrium. This was a unique aspect of the design (see Figure 2).

**What was the reasoning behind the atria, and what were the challenges?**

I don't think it could be done in the United States, due to the fire codes. But it can be done in Australia. It gives the possibility of giving the users a more intimate interior, and a community feeling up in the air, where you have visual contact among the floors in each of these villages. It gives an opportunity of getting better views from more positions in the building. The views are important from this building, as it opens out to the Opera House and the water and the bridge (see Figure 3).

It also allows you to have a view straight to the outside when you exit the elevator. Normally, when you exit into an elevator lobby in a high-rise, you don't know where you are in the building – you may as well be in the basement, because it's really just a

“This is a reuse that is very sensible. We use as much of the core as we can – instead of pulling the whole thing down and building up a new structure in its place – and then we add 100% more area to the tower.”



Figure 1. Saxo Bank HQ, Copenhagen – open atrium.

corridor. But here, you have a view to an atrium, and from there to the surroundings. The client called that the “million-dollar view,” it was one of the reasons they chose us.

We had several different concepts, but we got some positive feedback on the “vertical village” concept at the mid-term. So we went back and developed that further.

**The most radical aspect of the design is that it's a complete remodeling of an existing 1976 office building. Was that proposal unique to 3XN or was it always in the client brief that this was to be a renovation?**

I would not call it a “renovation” so much as an “upscaling” of a high-rise. This is a reuse that is very sensible. We use as much of the core as we can – instead of pulling the whole thing down and building up a new structure in its place – and then we add 100% more area to the tower. So it is doubling in size. From a sustainability point of view it is a good choice, and it really makes sense from an economical point of view.

The client wanted us to consider reuse, and we took it very much into our own hands. The design of the new building is fairly rigid and rectilinear toward the southeast side, and very sculptural in the way of the Opera House toward the opposite corner. The entrance of the building is where the old building stands today, and then the corners are pulled outward in a sculptural way. So

when you walk around the building, it looks different from every side and angle.

**What were the structural engineering requirements for this series of cantilevered wedges spiraling off the original core?**

We have a good client. They never saw the idea as a big problem. It is a challenge, of course, but one that is fairly easily resolved, by an angled beam running from the bottom to the top. It is cantilevered, but in a very pragmatic way. When we won the project, they gave us eight weeks to value-engineer out AU\$50 million from the design. So went through that process – most of the expense, and thus the savings, was in the construction – and came up with an under-budget scheme in seven weeks.

When you have a building like this, you really have to consider everything. It's not that complicated, but the extrusion had to make economic and construction sense, in that you have more square meters at the top, where rent is higher, than at the bottom. The building increases from 188 to 216 meters, and from 46 to 54 stories. That pays for itself.

**What is the programmatic breakdown of the building, and how does that work in terms of the vertical villages?**

The client/owner, AMP, is occupying a little bit less than half of the building in terms of floor area. They are subletting the rest. They have taken three of the lower sections and let out the two upper sections. The very top section is reserved for the most exclusive, smaller firms that can afford the highest rents, such as law firms.



Figure 2. Quay Quarter Tower, Sydney.

There was an interest in people from both AMP and the other tenants mixing in the common areas. Moreover, in a big company like AMP, people need to meet frequently. When we took the client on a tour of our work, we also stopped at Swedbank in Stockholm, which is 45,000 square meters, built as one long, 10-story building, with five intermediate atria (see Figure 4). The communicating stairs inside the building cause people to interact more. We took this idea into the high-rise in Sydney. We think the future is about working together, interacting and getting inspired by your fellow colleagues, and of course, by other businesses as well.

**The other part of the story is what happens at the street level. Can you talk a little about that?**

The building has to animate the streetscape. There is a horizontal village as well as vertical ones; it involves retail and markets, built into



Figure 3. View from Quay Quarter Tower sky lobby.



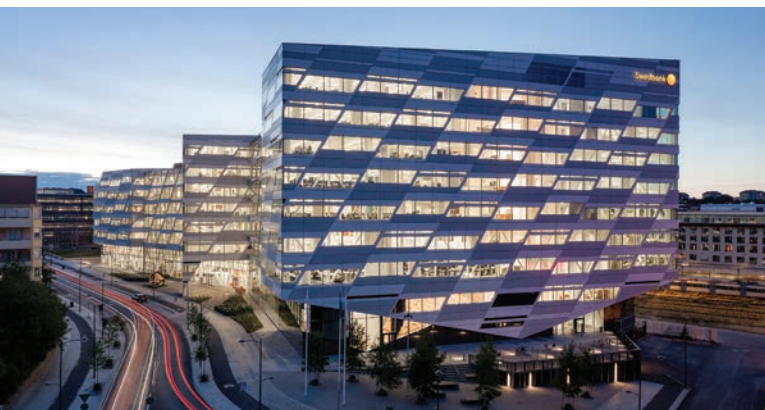


Figure 4. Swedbank Headquarters, Stockholm.



Figure 5. Bella Sky Hotel, Copenhagen.

the surroundings. So it creates a lot more than just a lobby space. Most high-rises have big lobby spaces, but don't give much back to the surroundings. Here you have cafés, restaurants and things like that in the podium, and that allows for a lot of activity. With the climate in Sydney, which is normally fairly nice, there will be people sitting outdoors, and that will animate the streetscape as well.

#### **There is a significant grade change across the site. How does the new building handle the transition?**

There is indeed a big height difference from one end to the other, almost 11 meters. The new building will have a transparent façade on all four sides. To move from the lower part to the upper part (of the podium), there is a kind of laneway through the building, with an escalator, so you can travel up the hill and see what is going on inside the building, with a big staircase, the marketplace, cafés and so on. That activates the inside of the building as well.

At the high point, level with Bridge Street, people will be able to go straight out to the top of the podium where there is going to be a roof garden with cafés and the like. In that way, every level of the podium can be activated. We are also opening up the top of the building with roof cafés.

#### **How is this executed, given security and vertical transportation requirements?**

The elevators will take people directly there, so there is no opportunity for visitors to alight on private floors. In order to take on all these roles, we are installing TWIN elevators.

Because they can stack on top of each other, we're doubling the floor plate size, but only increasing the number of cars by 30%. We actually were able to achieve a ratio of 17% core to 83% leasable floor area. We went on a study trip to high-rises around Europe, Asia, and Australia, and we didn't come across any buildings that had this kind of efficiency.

#### **What can we deduce from the fact that your firm has designed numerous extruded, twisted, curved, or otherwise unconventionally shaped towers?**

It's all about value for money, actually. Of course, it is about something that has an architectural value at the same time. For example, with the Bella Sky Hotel in Copenhagen, we have two tilting towers to create more value for the client, providing more views from more of the rooms (see Figure 5). We could also make an iconic building that would attract customers. We made a calculation about how much more expensive it would be to create two leaning towers rather than two straight towers. It was only a 5% incremental cost on the construction. So the client saw that as value for money. It was finished in 2011, and already it has been sold for much more than its original cost.

When we do these kinds of things – and we are doing it with the Quay Quarter Tower – it is really to make a good business case as much as interesting architecture. When AMP moves into this tower, they want people to recognize that they are a powerful organization and this is their headquarters. The building becomes an icon for the

organization. It's a brand value in that sense, but it also has economic advantages.

#### **What is going to happen on the north side, where the block containing the new Quay Quarter Tower and the older AMP Building faces the harbor?**

We are going to move the buses away from the front of the building group and make the whole area more pedestrian-friendly. Sydney is really improving its public realm. The Director of City Planning, Development and Transport, Graham Jahn, is very much inspired by Jan Gehl, the Danish city planner, who is a member of our team. Gehl created an urban strategy for transforming the overall city center in 2007, and he also helped us develop the façade and areas around the building. So those are very much related strategies.

#### **As a Danish architect working in Australia on a prominent site, do you feel any pressure, or draw any lessons from the legacy of Jørn Utzon and the Sydney Opera House?**

We feel not so much pressure, but rather a challenge by which we are inspired. Utzon inspired our design in a way. I saw a film in which he had been asked about the shape of his Opera House. He took out a matchbox and said, "is it interesting to look at a square?" He wanted it to be a work of sculpture. With our project being situated directly behind Utzon's building, we wanted to salute that. From that and many other points of view, everything we're doing has meaning to it. ■

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