Local Context and Global Workflows: Designing Tall for Today and Beyond

Martin Henn

Interviewee

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Martin Henn studied architecture at the University of Stuttgart and at the ETH, Zurich. He received his Master's Degree in Architecture from the ETH, Zurich in 2006, and his Post-Professional Master of Advanced Architectural Design from Columbia University, New York in 2008. Prior to HENN, he has worked for Zaha Hadid Architects in London and Asymptote Architecture in New York. Martin Henn is Design Director of HENN. In 2012 he was made partner.

Figure 1. Haikou Tower, Haikou.

The work of HENN Architects is reflective of the themes of both the previous CTBUH Conference ***Global Interchanges*** (New York, 2015) and the upcoming ***Cities to Megacities*** (Shenzhen, 2016). The Berlin-based firm is perhaps best known for its AutoTurme 1 & 2, glass-enclosed car elevators at the Volkswagen factory in Wolfsburg, Germany completed in 2000. But the firm has steadily found tall building work around the world, in the burgeoning megacities of China and in more unusual places, such as Ethiopia. CTBUH Journal Editor Daniel Safarik spoke with Martin Henn, Design Director and Partner, HENN Architects, for an insight into how individual originality, economic imperatives, and local relevance can all be maintained in the contemporary global high-rise.

As skyscraper technology and design are global phenomena, and the process of designing and building spans across boundaries, how do you maintain a valid connection to the local social, cultural, architectural, and environmental conditions? What makes your designs uniquely localized?

Understanding of the cultural and social context of the place is key. For example, in our 428-meter Haikou Tower project (in Haikou, China) we felt that the Buddhist faith was an important influencing factor (see Figure 1). While avoiding any direct iconography, we did reflect upon principles such as harmony, balance, flow and continuity. But these are architecturally abstracted and find their references in the geometric language and the spatial articulation of the building. Projects often happen at such great speed and scale that we are confronted with a noncontext. In China, entire CBDs often mark the starting point of new urban developments. The challenge is to bridge the gap between rich, ancient, local cultures and the new, contemporary identities of the place and the people.

Therefore, we also feel strongly about making tall buildings friendly urban neighbors that allow the "urban tissue" to continue. Especially, the podium should be an animated part of the cityscape and streetscape; not isolated, solitary, and one-dimensional, as was traditionally the case with many towers. But the context is not only a cultural one: the Haikou Tower also reacts sensitively to its tropical climate with a smart façade design that reacts to differing sun and wind conditions.

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The workflow for the Haikou Tower was an interesting experience of intercontinental collaboration: the façade was engineered in New York, the building was designed in Berlin, the structure in London, and the details in Beijing!

How did you become involved in designing skyscrapers in the first place, and how did this expand outside of Germany?

We got involved through our work in China, a place of unprecedented urban growth, with a need for much higher building density than we are used to in Europe. The vertical expansion is an imminent need and tall buildings are a very common and far more accepted building typology.

One of the first high-rise competitions we won was for Haikou Tower, which is now under construction. Through our experience in China, we are now involved in multiple high-rise projects around the world.

Clearly, German design expertise has been, and still is very well respected in China in many industries, including tall buildings. What do you think you have brought back, or will bring back, to Germany from your experience designing for China?

A more semantic dimension of "architecture." The Chinese culture, language, and writing have a stronger emphasis on "the image." We discovered that a powerful narrative is absolutely key to sell your project. This goes hand in hand with a strong idea.

German design stands for a rather rational and efficient approach, with a great focus on the detail and the proper execution of the project. We aim to combine both strengths in all of our projects and to mutual benefit.

How do you find the approach and end results differ when the project is solicited via competition instead of a bilateral client-architect arrangement? Do you prefer one over the other?

We really appreciate participating in architectural competitions. Several of our high-rise designs in East Asia, such as the towers in Taiyuan, Shenzhen, and Haikou are the result of an architectural competition.

The great thing about competitions is that they force you to distill a clear architectural vision and let you benchmark your design concepts against other contenders. That is why competitions are important to ensure a high level of quality. In Germany, competitions are steered by an expert jury that makes the decision making very transparent and comprehensible. The (only) upside of hierarchical decision-making is: Once something has been decided upon, you are good to go!

However, we also receive many direct commissions. Here we have the chance to build a stronger dialogue with the client at an earlier stage. We like to use "Architectural Programming" as a tested tool to shape the design process in a more nonlinear, communicative fashion. Understanding the needs of the client and the ccontext better often leads us to unexpected conclusions and design solutions.

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In your research paper for the CTBUH 2015 Conference, "Novel High-Rise Typologies," you speak of the usefulness of "voids" as a design canvas. As some of the most heavily programmed and highly secured building typologies on earth, how do you foresee adaptability taking shape in tall buildings in the future?

Most high-rise buildings are singularly programmed entities, which provide maximum rentable area for the least amount of building cost. But we are realizing that the way we work and live has changed radically over the past decades. Today, social interaction and communication are the drivers of innovation and change. Voids free up space for the unexpected. They set the stage for a more vibrant and urban experience. Largely undetermined spaces can stipulate a dynamic and create at least semi-public realms with some visual exchange across floors, when easy accessibility is provided. Contemporary skyscrapers should no longer resemble mere "stacks of pancakes," because our societies are no longer based on Taylorism, but instead on multi-directional networks – advanced architecture can become a spatial equivalent for that.

Speaking of "voids," can you talk about how you were able to engineer the overall performance of the Haikou Tower, a supertall building with several atria in the middle, to occupant comfort?

In the case of the Haikou Tower our main aim was to integrate structure, program and circulation into a consistent whole and therefore ensure the maximum user experience. The engineering of the void spaces in the upper part of the tower was a big challenge due to extreme seismic and wind forces. The hotel lobby on the 72nd floor has a 360-degree panoramic view and opens up to a central void above (see Figure 2). In an area that is prone to earthquakes as well as typhoons, the structure of a supertall tower has to be rigid and flexible at the same time. The structure is based on eight

Figure 2. Haikou Tower 72nd floor sky lobby offering 360 degree panoramic view.

Figure 3. Haikou Tower rendering showing megacolumns with diagonal bracings.

Figure 4. AutoTurme, Wolfsburg.

Figure 5. AutoTurme, Wolfsburg – looking down.

megacolumns with diagonal bracing (see Figure 3). The vertical core moves from the center in the lower office part, splitting into four lesser cores in the upper hotel floors.

Can you tell us a little bit about how HENN uses simulation software to model scenarios in the skyscrapers you are designing? Where can we expect to see the most obvious result of this modeling first?

At the early design stages we are using digital tools to analyze and test the impact of our design on human behavior. For example, we developed scripts that can analyze and quantify the visual connectivity of void spaces in our buildings. Based on those insights, we can optimize their performance and make sure we end up with the right solution.

The Wolfsburg AutoTurme is perhaps the most famous auto elevator in the world. It is used as a precedent citation for many other tall buildings that propose some kind of automated parking system. Yet it is a single-purpose structure. Many of the automated systems built within multi-purpose buildings in which people live and work have been disappointing, if not total failures. What do you think architecture still has to accomplish in this regard? Is it sensible to keep developing auto-centric solutions like this?

Cars are still a reality in our cities. Clearing valuable space for pedestrians, bikes, and green space would be desirable. Therefore, we have to find more efficient and compact ways of parking in the future. At Autostadt in Wolfsburg, the vertical storage of the cars is mainly for display purposes for customers who are coming to pick up their cars. At the same time, it is a very space-saving way of storing cars (see Figures 4 and 5). In our current design for the Kingdee Tower (see Figure 6) in Shenzhen, we are now applying a similar above-ground shelf-like car storage system because of the tight site and limited underground space. ■

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Figure 6. Kingdee Tower, Shenzhen