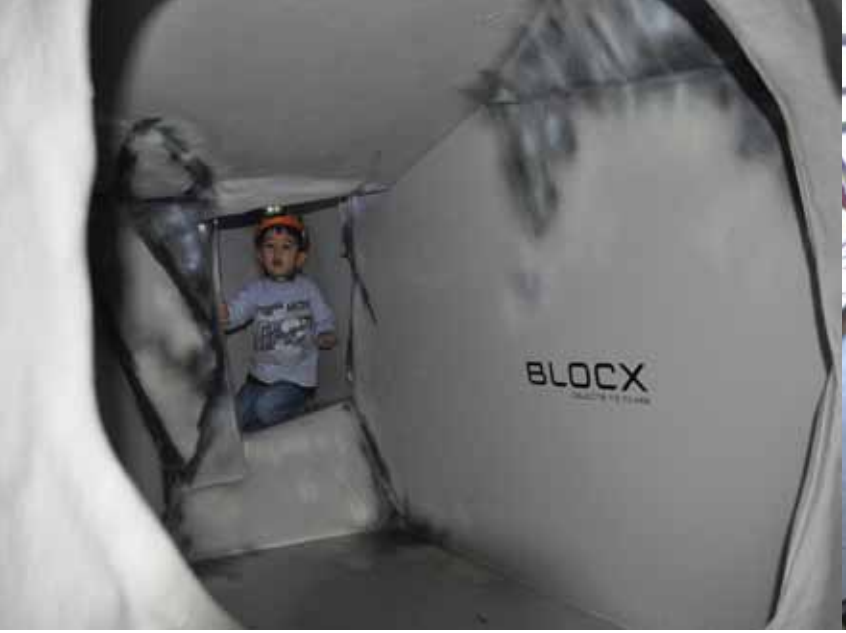
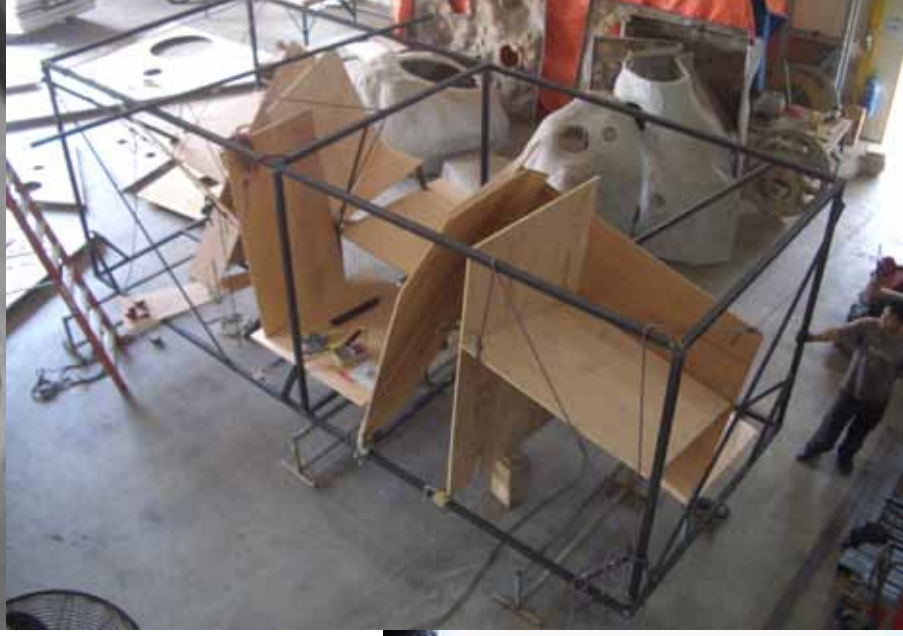
Having already achieved an unprecedented three World Championships and four European Championships in Downhill Skateboarding, Martin Siegrist was absent for the majority of the 2010 race season. He only competed once, in which he won his fifth European title. Even though he wasn t racing he was still very busy, having chosen to pursue his career in industrial design. During a Marathon Skype call, where we learnt enough about the guy to write a whole issue, we discovered that the origins of his competitive nature started in Indoor Sport Climbing. In a similar fashion to Downhill Skateboarding he was Vice Swiss Junior Champion and between 1998 and 2001 he was on the Swiss National Team for Free Climbing. With his climbing background and industrial design skills he became involved with Blocx, a Swiss climbing wall manufacturer, now located in Kuala Lumpur, Malaysia. During the 9 month period he spent in Malaysia, dealing with wild dogs, dead cats and third world labourers he worked on several projects, one that stood out above the rest was the transportable climbing cave. With harnesses and ropes unattached, we climbed deeper into this awesome project.

Interview | Nathan Aveyard & Kurt Nischel
Photo | Pyramid Mountain, Girraween National Park, QLD, OZ

Swiss Ingenguity





How was it that you became involved in this project and how long did it take to complete?

I was fascinated from the moment my boss told me he wanted to build an artificial cave system. I realized it would be a big challenge to design and fabricate a very complicated, three dimensional project. We spent about two months working to complete the prototype, with typical weekend work and night shifts towards the end, as it had to be finished for an exhibition.

Was it your idea to house the cave in a shipping container?

We wanted to show the cave and a prototype climbing wall at an exhibition, so it was kind of logical to put it into a shipping container and use this as our booth. The container was easy to transport and also served as a counterweight for our climbing wall. We definitely had the coolest booth at the IAAPA 2010, in Kuala Lumpur, over looking everybody else from our lounge on top of it.

How big is the container and the cave inside it?

The prototype cave is built into a 20 foot (7m) overseas shipping container. The overall length of all tunnels is approximately 25m. It's a maze with several different tunnels.

How long does it take to climb through it?

We timed our workers crawling through the cave in complete darkness and the fastest guy found the exit in less than two minutes. You could spend much more time exploring the whole maze and there's a realistic chance that you could loose your orientation.

Was it difficult to design and fabricate the cave?

It was very challenging. The first concept was an intestine like tunnel system. I did some visualisations with lofted cross sections. The files got heavy pretty quickly and I realized that this was not the way to go. At that point we also didn t have a clue how to fabricate the tunnels. With the deadline coming closer and closer, I couldn t spend much more time on CAD. We got a shipping container, some metal and wood and started shaping.

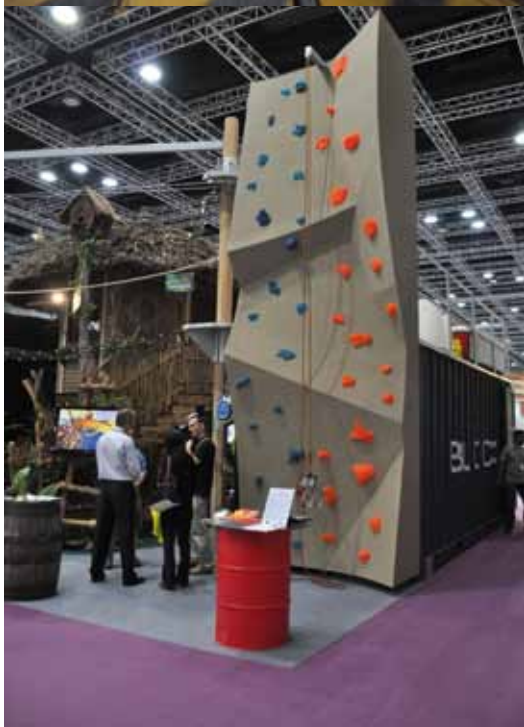
Tell us a bit about the design process you went through. Were you involved in the actual construction?

The design process was going side by side with the construction of the prototype. We had a metal cage that defined the boundaries of the cave. This way we also didn t have to work inside the container and we could resell the container independently afterwards. At first I positioned plywood panels to create some kind of a mezzanine level and split these into cells. We closed gaps with plywood, spray foam and glass fiber. Since I didn't have any plans at all, it was impossible to let someone else do all the work, hence I did all the woodwork on my own. The welding was done by our workers, same as all the composite work and basic painting. It was our goal that you couldn t see very far so you really needed to explore which way you should take. During construction we drew many important conclusions that led to a better concept for both design and production.

Have there been any problems with climbers getting stuck inside the cave?

So far everyone has found the way through. However there is one pretty tight crack where most people hesitate. Design wise it's difficult to create cracks so people can pass through. It requires some experience. Now this prototype was only a small section of a maze. My boss and I are dreaming of bigger systems where

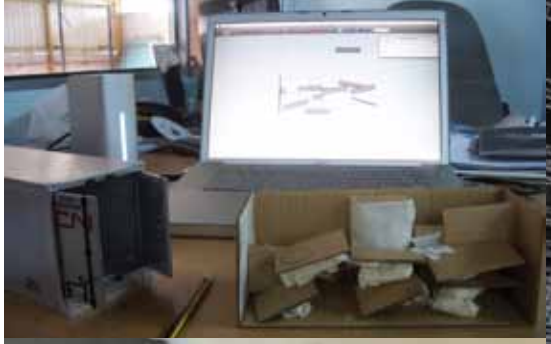
Genting Hill near Kuala Lumpur

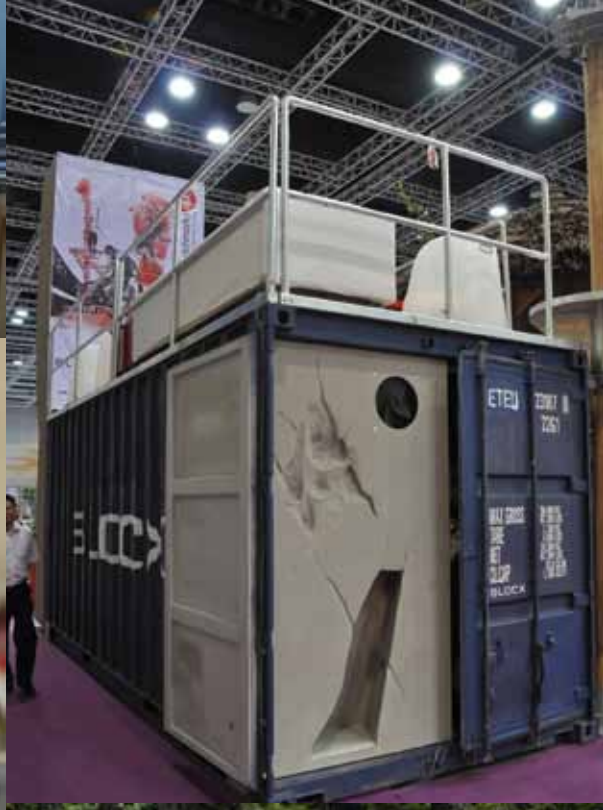


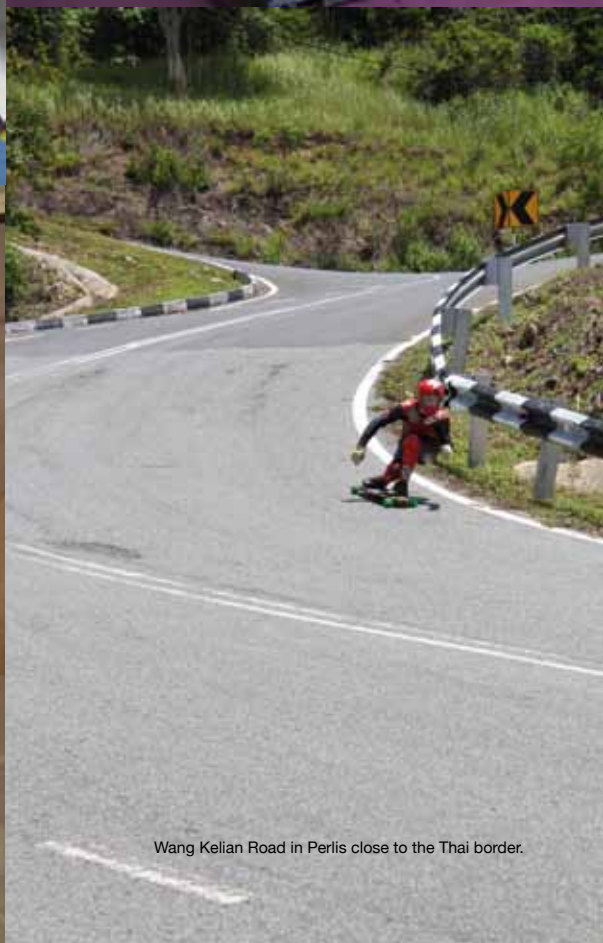
you could explore different routes, some easy, others claustrophobic. The maze has to have safety exits should someone get hurt. It would also be nice to know where people are inside the cave, something like a tracking system would be ideal.

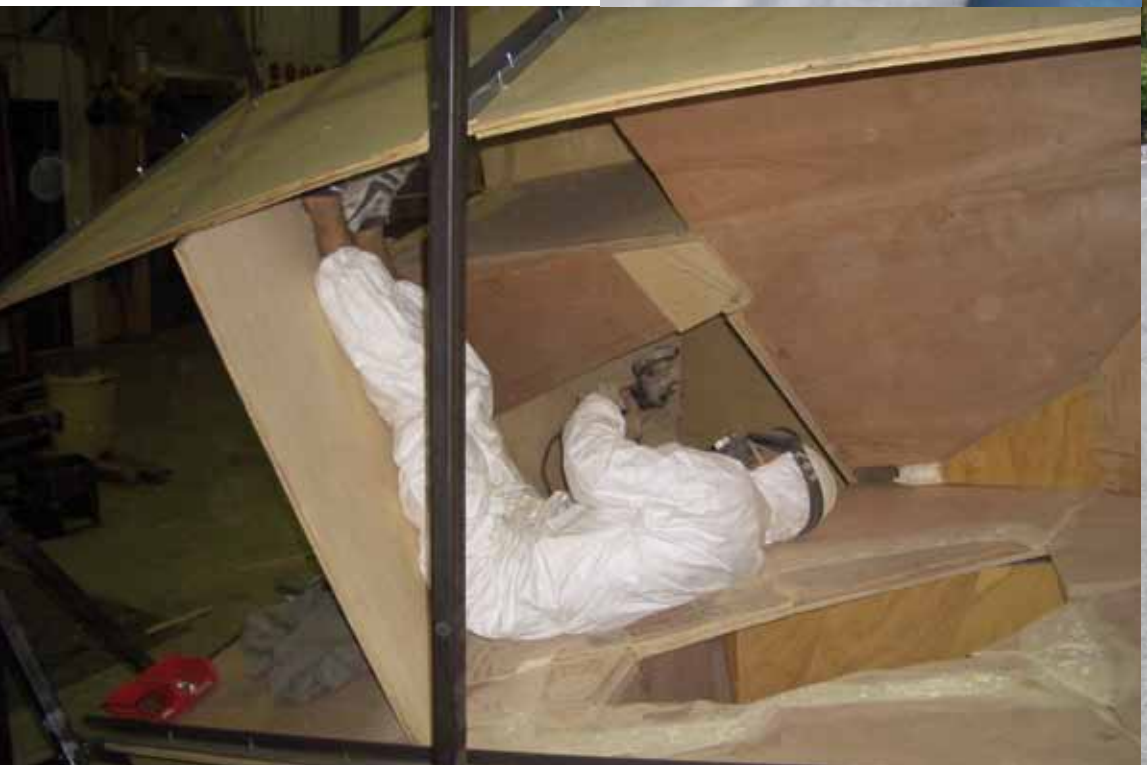
You are well known for being a perfectionist, were you happy with the end result?

The cave became my masterpiece! I m happy with the prototype, yet I already know what I would do differently. I saw people crawling through the maze all day long at the IAAPA exhibition. Adults were smiling and kids couldn t stop. In addition to that we got lot s of positive feedback and sold our first maze. As mentioned previously, the prototype led to a new concept; modular cubes that can be assembled to a massive system. The second approach in CAD, chopping cubes into many small pieces in order to remove some of them and create tunnels, failed again due to huge file sizes and drawings that couldn t be handled anymore. During another design research phase, I discovered a mathematical principle to split a volume into cells. It s called Voronoi Tesselation. Combining this with a parametric CAD modeler, I've finally found an efficient way. This approach should also be easier to fabricate. Just imagine climbing and crawling through a maze consisting of big soap bubbles. Wouldn t that be fun?









Wang Kelian Road in Perlis close to the Thai border.