# Nominering till Stålbyggnadspriset 2023

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|---|---|
| Projekt: | *HAGE* |
| Plats: | *Lund Utmarksvägen* |
| Tid för färdigställande/invigt: | september 2021 |
| Arkitekt: | **Företag**<br>Brendeland och Kristoffersen Trondheim<br>Geir Brendeland |
| Beställare: | **Företag**<br>Lunds domkyrka<br>Mats Persson |
| Stålkonstruktör: | **Företag**<br>Ingenjörsfirma Price Myers London<br>SSAB rosttrögt stål ”cor-ten”<br>Distributör Tibnor |
| Stålentreprenör: | **Företag**<br>Proswede<br>Osbyholm<br>Möllevägen 2<br>242 93 HÖRBY |

## Beskrivning av projektet/byggnaden:

Hage
Ett stycke utsparad mark i en stadsdel i tillblivelse. En blommande hage i ett utvecklingsområde. En yta som värnas av en tegelkvadrat där teglet tidigare tjänstgjort i andra byggnader. Märkta av tid, fortfarande användbara. Ett stort bord för måltid och gemenskap. Ett skydd för vind och väder. Vatten som reflekterar himlen.

Hage är placerad på Lunds domkyrkas mark på Brunnshögsområdet. Hage speglar och kommenterar värden som är förknippade med katedralen och som Domkyrkan vill föra vidare i förvaltande och gestaltande inom ramen för ett stadsutvecklingsprojekt.

Mitt i staden ligger katedralen med sin långa historia. Ett annorlunda rum öppet för det som är större. En lunga i stadens inre.

När kvarteren runt Hage är bebodda finns den kvar som en utsparad yta. Ett mellanrum i stadsdelen. En plats av vila och skönhet.

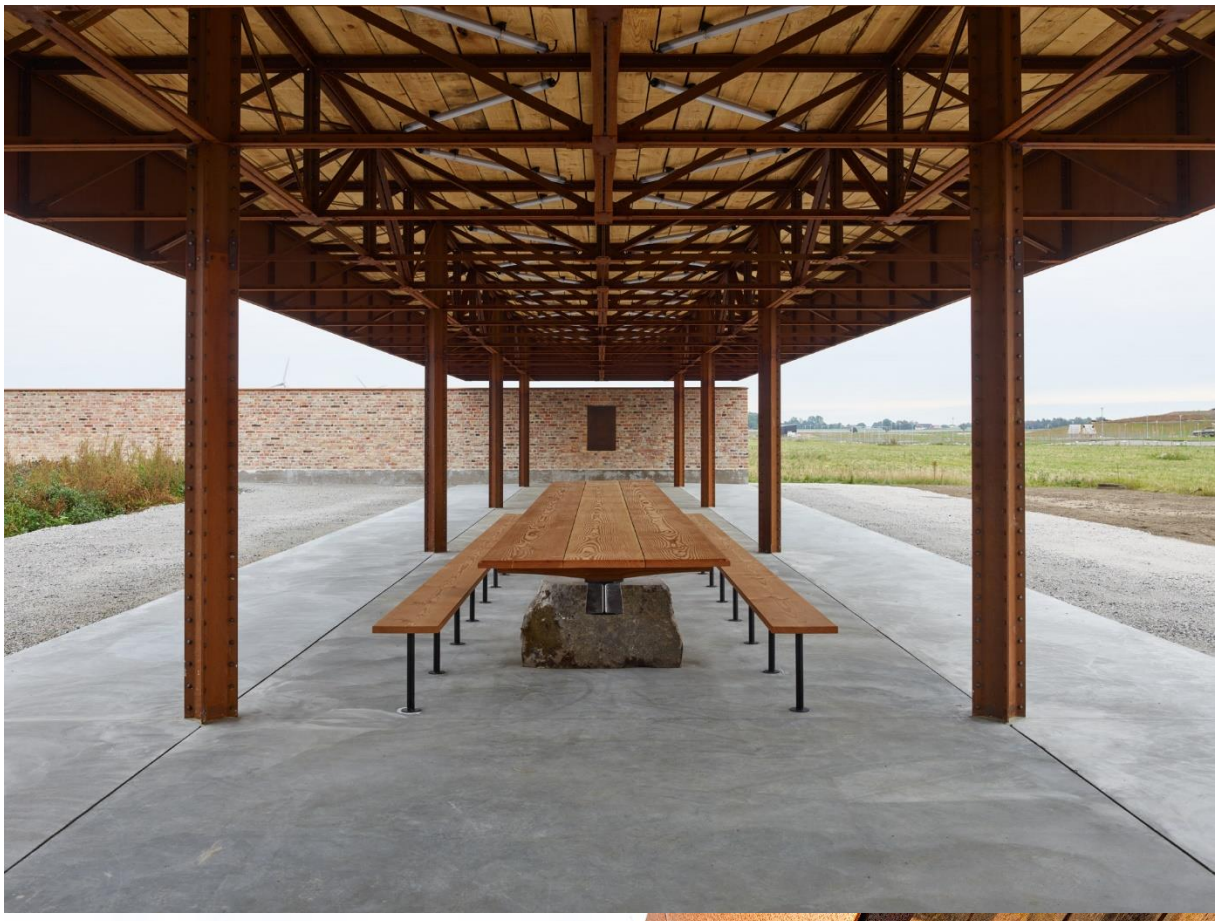
Hage är den första permanenta struktur som byggs inom ramarna för Råängens konst- och arkitekturprogram och den kommer vara tillgänglig för alla. Trädgården, som är ritad av Brendeland & Kristoffersen i samarbete med ingenjörerna Price and Myers, består av en sittplats i skydd av ett ståltak samt en tresidig tegelmur. Under de kommande åren kommer en helt ny stadsdel att växa upp här och trädgården kommer gå från att vara ett objekt som placerats ut mitt i landskapet till att bli en välintegrerad trädgård i den nya stadsdelen.

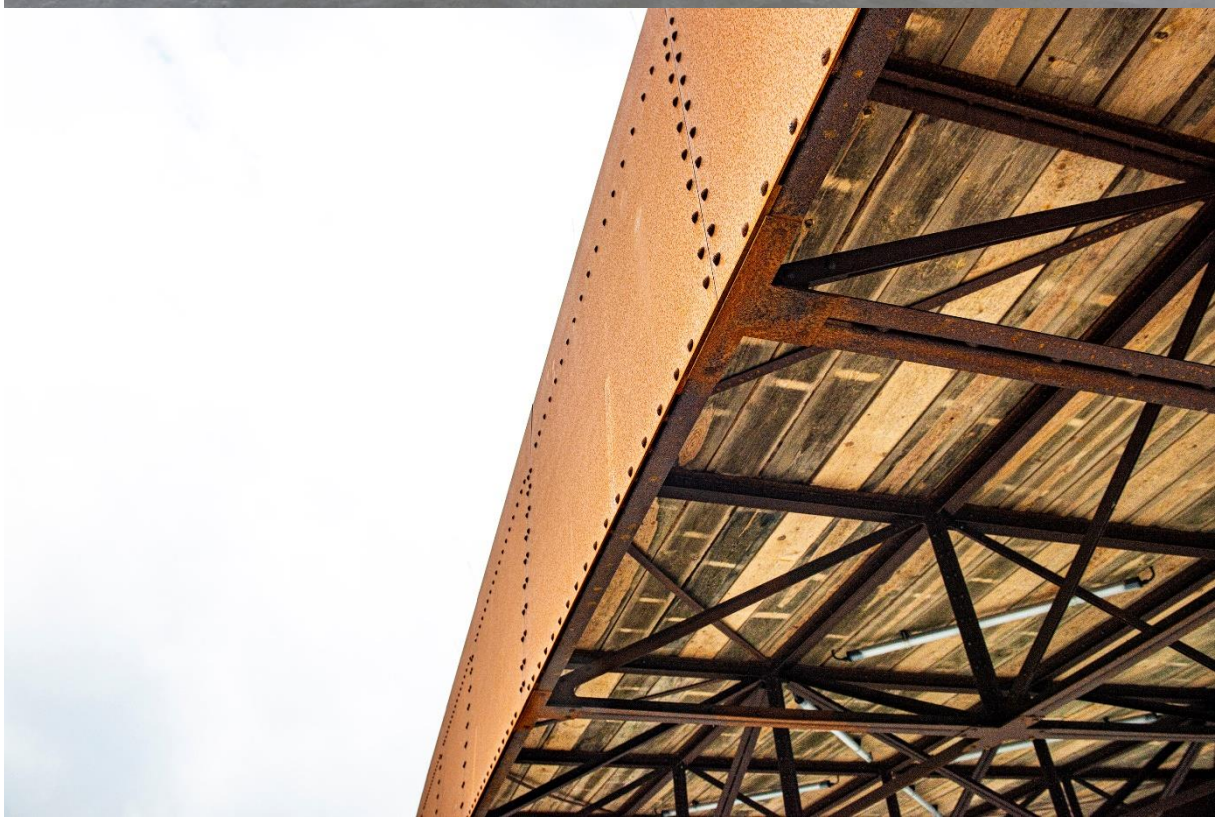
## Bilder / Ritningar:

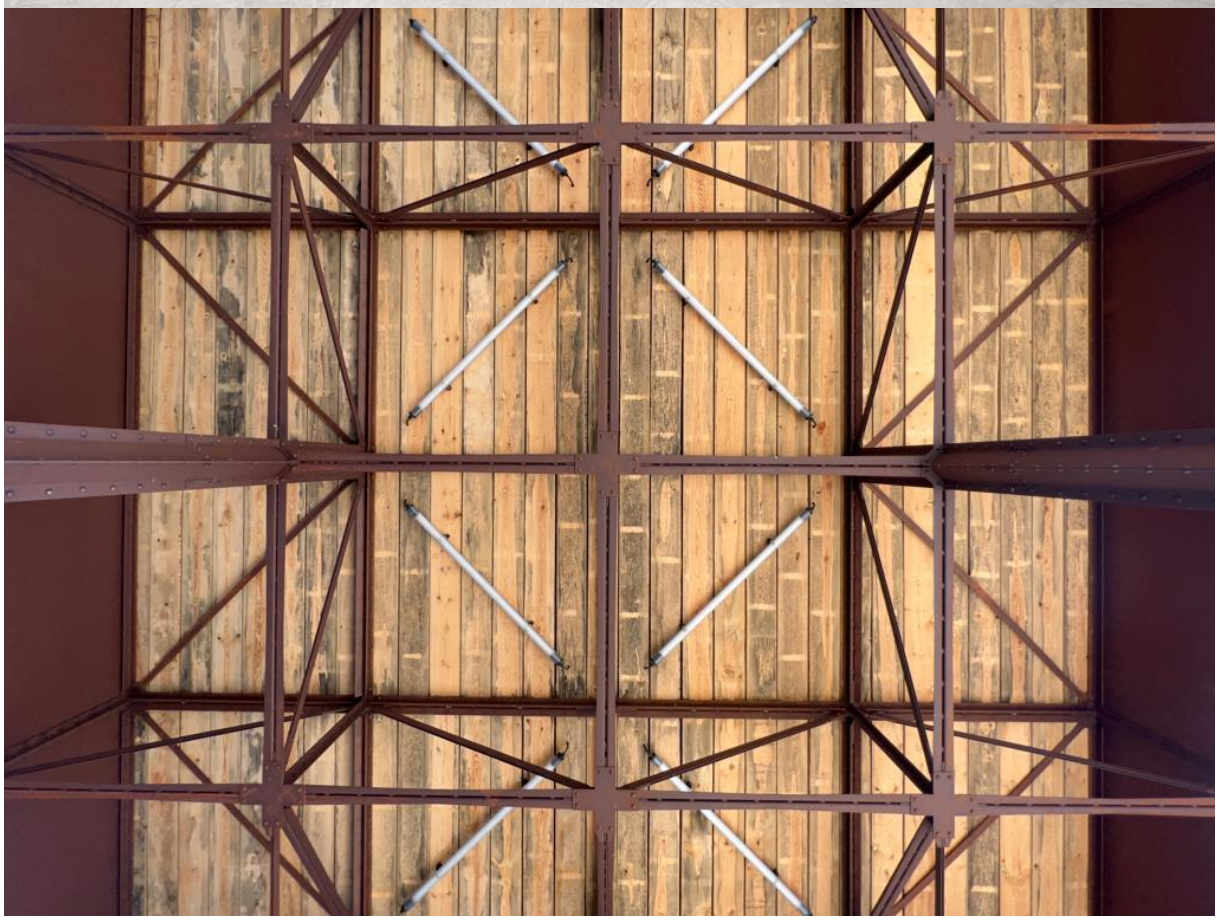
Film som beskriver projektet
https://youtu.be/vXjhGIAlzdc

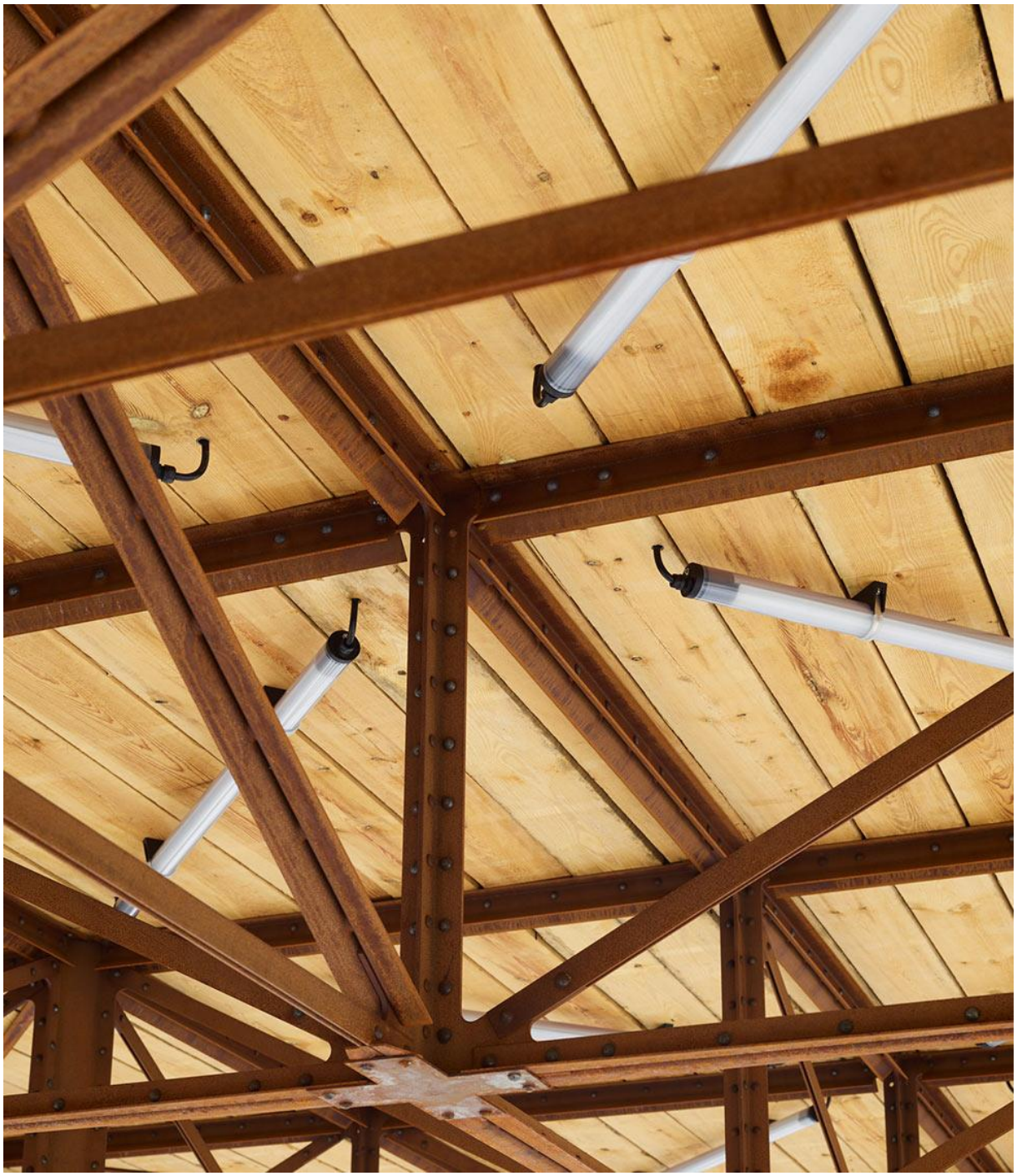
Webbartikel från konstruktören: www.pricemyers.com/projects/the-hage-205

Den som nominerar projektet: Mats Persson









# Råängen, Lund, Sweden

Råängen – which means "wild meadow" in Swedish - is a new urban development project on the north-east edge of Lund in southern Sweden, a piece of land owned by Lund Cathedral in Brunnshög. Formerly farmland, the 10 hectares site will ultimately see the development of a new neighbourhood including new housing, research facilities and parks.

At the heart of this project lays a fundamental question. How do you build a new community? By first designing a social space for it, the Lund Cathedral's board reasoned. The project for the new neighbourhood starts with the design of a new public garden. In this case, a walled garden equally responsive to the passage of time and to the people inhabiting the area.

Designed in collaboration with Norwegian Architects Brendeland & Kristoffersen, The Hage garden is made up of a canopy, a seating area, and a brick enclosure. It's the first permanent work commissioned for the church's land, in anticipation of the transformation of the site.

The 40x40m square is closed on three sides by 2.2metre walls made of recycled bricks recovered from a demolished jam factory in Björnekulla. The south-facing side has been left open and it is covered by a 44 x 8 metres corten steel roof. Under the roof, a long wooden table with two generous benches have been placed for people to use and gather around.

The canopy structure honours the Lund Cathedral, located only 5km away from the site, by replicating the complex system of rivets in the cathedral's roof trusses.

Price & Myers designed a structure using 20,000 rivets for the canopy, which is formed almost entirely from 4mm plate, and developed a system of inner and outer layers to provide load paths into the rivets.

The design team had to first confront a fundamental challenge – how to make the rivets at a 'structural'/building size using corten. It was a challenge met thanks to close collaboration with Swedish fabricators Proswede and their ingenious craftsmanship.

Still used in the aviation industry for their vibration-resistance properties, rivets in the modern form and application are rarely used in the building industry nowadays. When they are, they are generally small in size and are fixed using a modern 'pop rivet' machine. Chosen in place of standard bolts, the rivets for the Hage's corten roof had to be specifically procured and the riveting equipment especially designed.

When the team couldn't find a supplier in UK, Europe, Canada or US that could produce a limited number of weather-resisting rivets at a reasonable price, Proswede decided to purchase corten rods from the US and computer lathe them themselves. They then fabricated their own 'bucking bar' equipment that would allow them to robustly apply pressure to the flat shop head to deform it into the matching 'dome' shape at high temperatures.

Price & Myers carried out the calculations to monitor the rivets' performance by firstly checking the forces in a simplified stick model, to calculate what happened at each node. Some of the critical load paths were checked using FEA (finite element analysis) with the individual rivet forces compared to the shear capacity calculated by hand.

Once the arrangement of every rivet was finalised, the information was unrolled for fabrication, giving the laser cut profiles directly to the fabricator along with bending angles for their press-break machine. Information was also provided to them in a complete digital model which allowed them to consider the assembly logistics in detail.

The majority of the structure was rivetted together into large modules within the fabricator's shop, with the last joints being fixed together with the final rivets on site.