The development of the high speed railway network requires renovation of Stuttgart’s existing main railway station and its development as a through station below ground level. It is southern Germany’s biggest town planning infrastructure project and the first part of the greater “Stuttgart 21” programme which foresees new inner city development over the buried tracks. A minimalistic concrete shell construction will span the 420 metre long railway platforms and connect inner city pedestrian zones with the historic Schlossgarten park. Structural geometry has been developed in close interdisciplinary collaboration between Ingenhoven Architects, civil engineers, and together with Frei Otto. Altogether 28 eyelets will bring daylight and natural ventilation into the underground station. For heating, cooling and lighting no energy is required, therefore the station is a zero energy building.
The continuous form of the shell-type concrete roof creates a highly efficient loadbearing structure which is only subject to pressure load and has a structural height which is as little as 1/100 of the span. The use of advanced high-strength concrete and cement grades means that the material properties can be selected, so that the durable exposed concrete surfaces form the finished building.

minimised structure

An integrated ecological concept with contributions to all disciplines. [1.1]

An innovative sustainable building and urban landscape project generated from local conditions. [1.2]

An outstanding approach regarding a sophisticated and highly optimised loadbearing construction. [1.3]

Accompanied by a comprehensive dissemination of knowledge. [1.4]
The station as a whole, with its exterior plazas, walkways and platforms, forms a new central urban public space and a social meeting point which creates a pedestrian link between the “Stuttgart 21” development and the present city centre. The listed historical Bonatz building is integrated into the functions of the new Stuttgart main station. Ethical standards and social equity [2.1]
A high level of visual and thermal comfort is achieved with hardly any consumption of primary energy. The natural ventilation and air extraction system uses natural draughts in conjunction with thermal air flow without the addition of thermal energy.
An outstanding infrastructure project with innovative financing models. [4.1]

The tremendous impetus for business ensures a positive regional impact. [4.2]
A forward looking station and urban redevelopment project with regard to future changes. [4.3]

The increase of passengers effects robustness to economic developments and conditions. [4.4]
The integrated project follows a high level of economic resources usage. [4.5]

sustainable development

A solid and well balanced financing is based on increase of future-orientated public transport system capacities and sales revenue of former rail track areas. This ensures a long-term feasibility of the projects economic. Economic performance and compatibility [4.]

The unmistakeable identity of the nature-like structure creates a long-lasting aesthetic elegance. The interlinking of the public pedestrian paths in the station and the “concealed” building structure correspond to the simple urban spatial setting.

Improvement and preservation of the existing distinctive topography. [5.1]

An interwoven contextual project corresponding to the interdependencies of the urban fabric. [5.2]

A future-oriented public transportation system with cautious restoration of the built environment. [5.3]

The station is a flexible, reversible and sustainable building. [5.4]

Main Station Stuttgart, with its unique and significant continuum, reflects a high level of ingenious and architectural qualities. [5.5]

* woven into urban fabric

The unmistakeable identity of the nature-like structure creates a long-lasting aesthetic elegance. The interlinking of the public pedestrian paths in the station and the “concealed” building structure correspond to the simple urban spatial setting. Contextual response and aesthetic impact [5.]
Main Station Stuttgart is an ingenious space for high speed trains. The goal was achieved not by striving for a high-impact image, but by taking a completely different approach. Optimisation, minimisation, efficiency and finesse in all technical and structural aspects - in other words: the qualities of interdisciplinary engineering and design virtues helped to show the way.