Staatlich befugte und beeidete Zivilingenieure für Bauwesen

Civil Designers

and

Consulting Engineers

BAUCON

Working worldwide for the benefits of our clients since 1986

BAUCON

Typical fields of activity and company key aspects

BauCon is a design company successfully serving its clients for more than 30 years.

- **Structural engineering**
  Structural design of steel and concrete structures
  Design of buildings and underground engineering
  Civil engineering
  Bridge construction and design
  Cable car construction and design
  Design of power plants
  Industrial engineering
  Special purpose engineering

- **Traffic route engineering**
  Road engineering
  Railway engineering
  Cable car engineering
  Urban and overland traffic concepts

- **Hydraulic engineering**
  Potable and industrial water supply
  Surface water disposal
  Flood and river control
  Torrent and avalanche protection

- **We put our focus on:**
  Keeping the schedule
  Flexibility for acceleration of deliveries
  High quality at a reasonable price

Clients and international projects

- **Clients:**
  AE&E
  ALSTOM
  Babcock Germany
  Doppelmayr Cable Cars
  Egger
  Siemens AG
  Steinmüller
  YARA
  Pöyry Energy

- **Executed international projects up to now in:**

Austria
Belgium
Bolivia
Brazil
Canada
China
Croatia
Czech Republic
France
Germany
Greece
Hungary
India
Italy
Iran
Pakistan
Philippines
Poland
Romania
Russia
Saudi Arabia
Slovakia
South Korea
Spain
Switzerland
Thailand
Turkey
United Kingdom
USA
Vietnam

BAUCON

Project examples

The following project examples show only a small part of our expertise but they mostly cover the fields of our work.

Table of contents

Hydro Power Plants

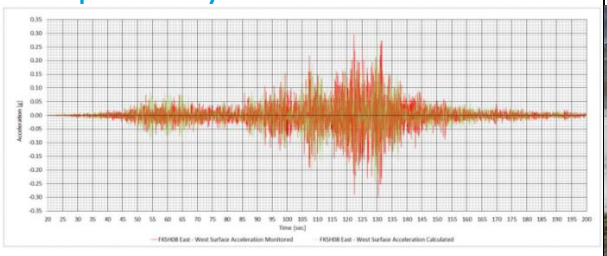
Dam Design, Dam Safety Assessment, Earthquake Safety Assessment, Liquefaction:

Detailed knowledge on design and earthquake safety based on numerous executed projects and back-analysis of dams that had severe earthquake damage.

Based on this knowledge, less stringent rules for earthquake safety must be used compared to international standards.

Guaranteeing dam safety to existing dams that need to be adapted to new earthquake criteria.

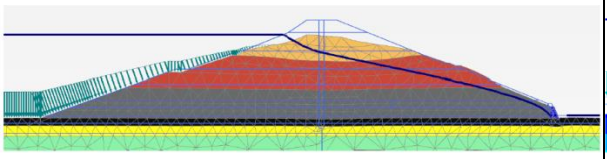
Earthquake analysis



General and detail design

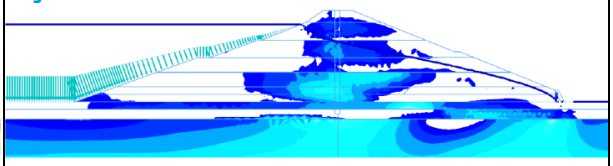
Dam breach Fujinuma dam – Earthquake settlement

Fujinuma dam



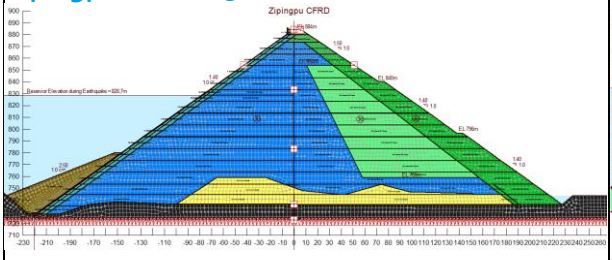
Deformation after M9.0 Earthquake

Fujinuma Dam



Liquefaction

Zipingpu CFRD (156m)



Deformation after M7.6 Earthquake

Zipingpu CFRD (156m)

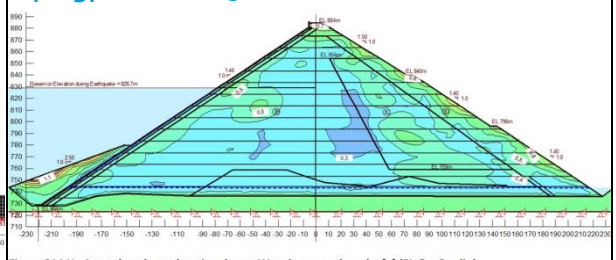
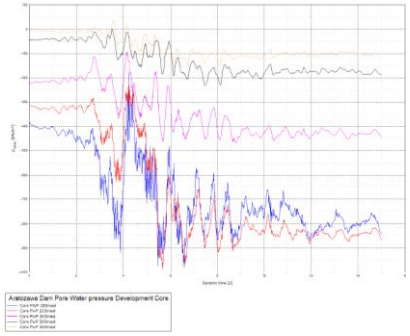
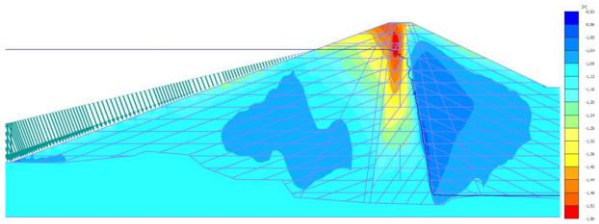


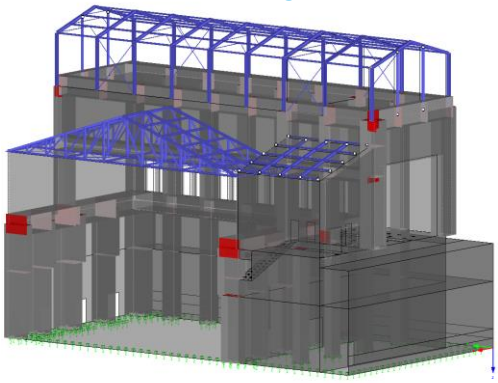
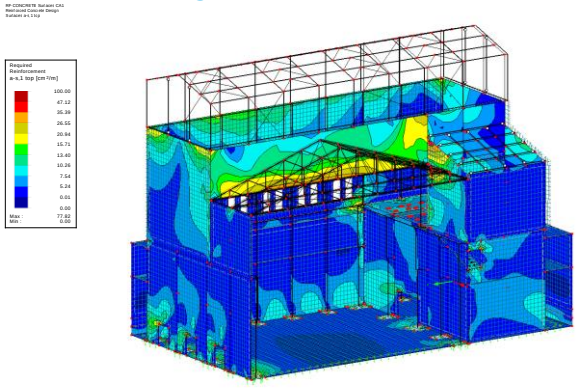
Figure 214 Horizontal peak acceleration due to Wenchuan earthquake [g] (EL GeoStudio)

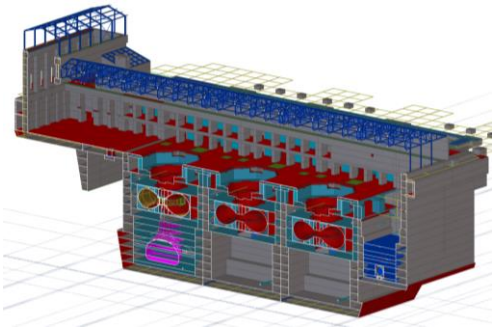
Peak acceleration after M7.6 Earthquake

Aratozawa ECRD (84m)	Aratozawa ECRD (84m)
	
Pore-water-pressure build up in clay core after 1g PGA!	Vertical crest settlement = 40cm after M6.9 earthquake

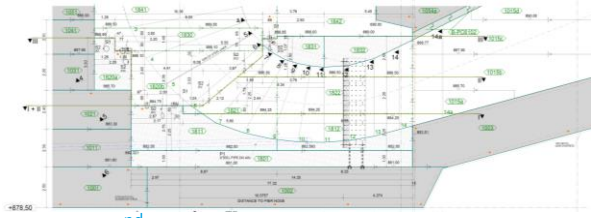
Powerhouses

Client: Pöyry Energy

Project 1 Transfer building	Transfer building
	
Structural analysis, 3D modelling, formwork and reinforcement drawing (TEKLA-Software)	Structural analysis (RFEM-software)

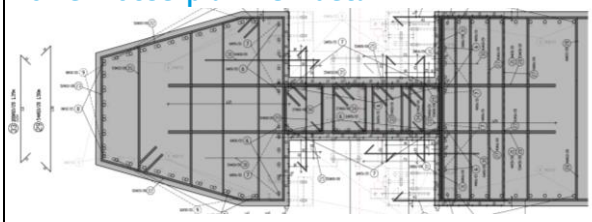
Complete model of power house	Unit 1
	
Longitudinal section (TEKLA-software)	Cross section including reference model of mechanical equipment

Power house vertical section detail



Unit 1-3 / 2nd Stage Concrete – Detail formwork drawing

Power house plan view detail

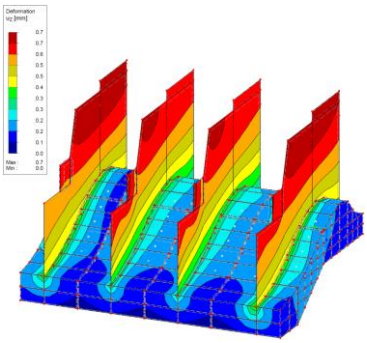


Unit 2 Reinforcement – Pier Nose

Transferbuilding and Unit 1-3 under construction

Detailed view during construction

Project 2 : Spillway FEM calculation

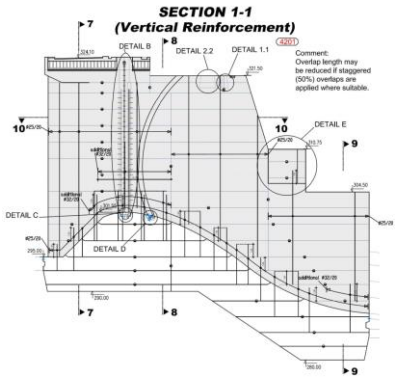


Vertical settlements U_z in mm (RFEM-software), detail design, structural analysis, reinforcement sketches

Spillway under construction

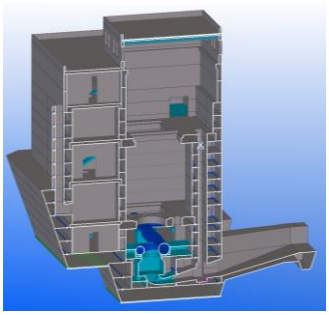
Detailed view during construction

Spillway vertical section detail



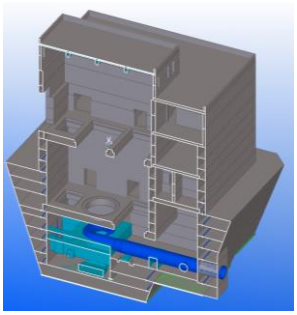
Reinforcement sketch Spillway

Project 2



Section through turbine (TEKLA-software)
Detail design, structural analysis, formwork and reinforcement drawings

Project 2

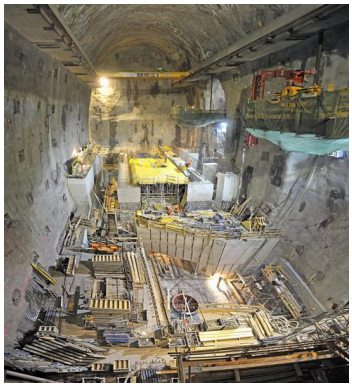
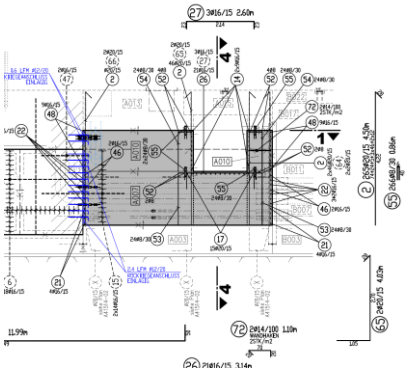


Section through turbine and penstock (TEKLA-software)
Detail design, structural analysis, formwork and

	reinforcement drawings

Pumped Storage Hydro Power Plants

Client: Pöyry Energy

Limberg II – Austria  Underground power house	**Power house Burgstall – Reißeck II Austria**  Detail of reinforcement drawing

Water Storage Dams

Client: Pöyry Energy

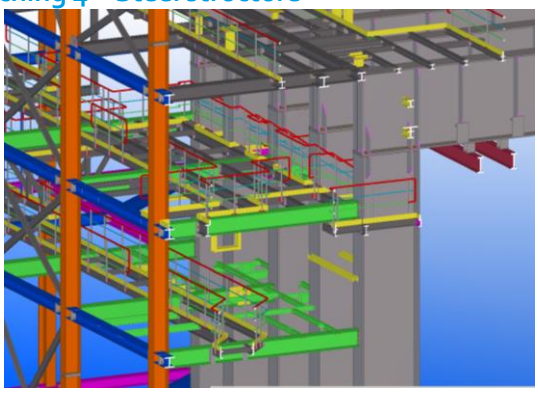
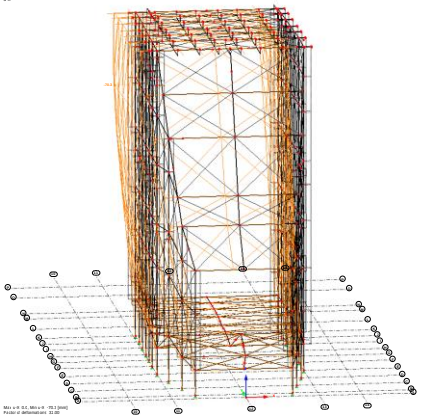
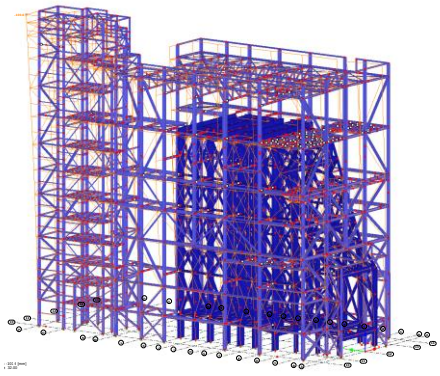
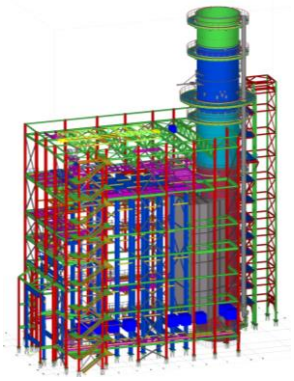
Almbahn Dam  Embankment dam – General and detail design	**Langwied Dam**  Concrete gravity dam – General and detail design

Thermal Power Plants

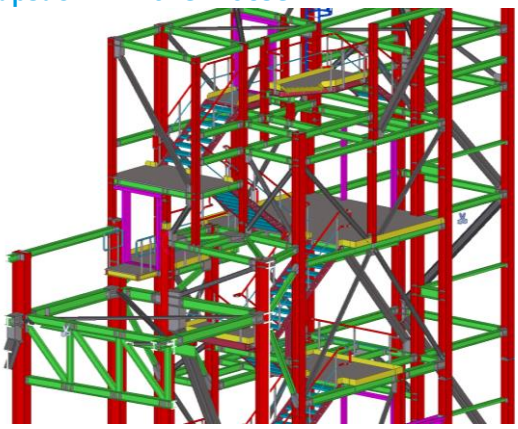
Statical and dynamical calculations and complete design of steel and concrete structures

Combined Cycle Power Plants

Client: SIEMENS

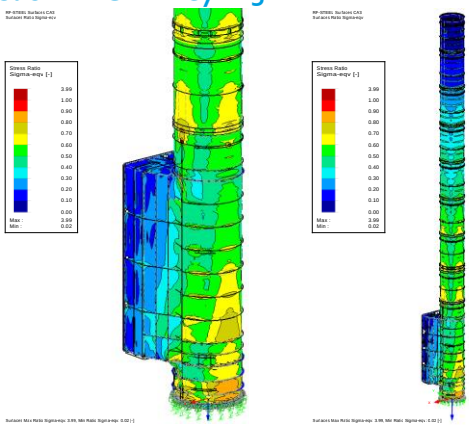
Irsching 4 – Steel structure  Steel structure detailed design and 3D model (TEKLA)	**Knapsack II – Boiler supporting frame**  Statical calculation, detailed design and 3D-Model (RFEM)
Knapsack II – Complete statical model  Complete system without chimney (RFEM-software)	**Knapsack II – 3D model**  Complete system with chimney (TEKLA-software)

Knapsack II – Boiler house



Details of steel structure (TEKLA-software)

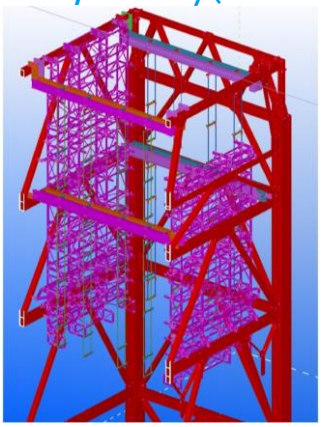
Knapsack II – Chimney 125m



Stress analysis with inlet duct, structural analysis and 3D model steel structure

Coal Fired Power Plants

RDK8, Westfalen, Germany (Client: Alstom)



Quick mounting modules – steel structure complete design (TEKLA- and RFEM-software)

Boiler supporting structure Simmering ¾

Complete design on behalf of Siemens Austria Lifting of head truss (10.000 tons) up to 76m height

Boxberg – Luvo- and coal bunker house

Structural analysis of steel structure and general design

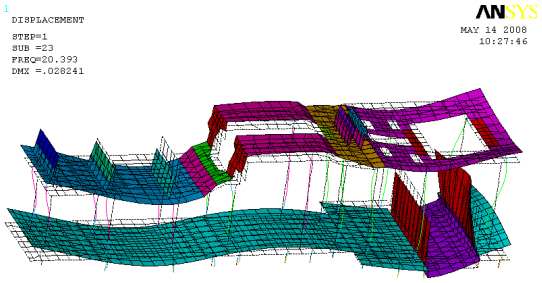
Böblingen – REA Co-generation plant

Structural analysis of steel structure and general design

Turbine Foundations

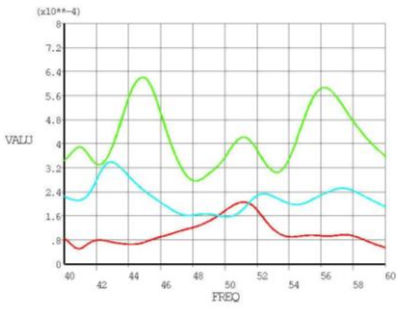
Statical and dynamical calculations, detail design

CCPP Timelkam



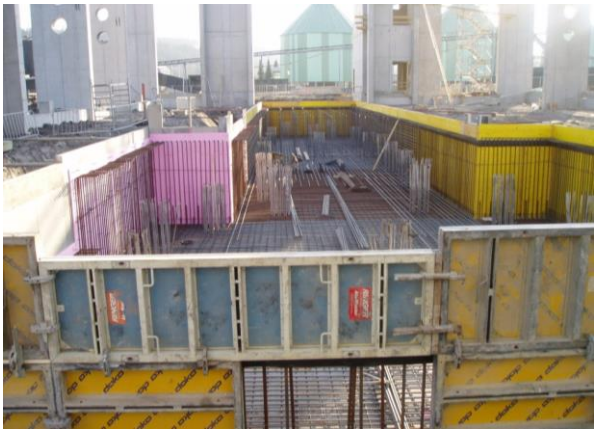
23. Eigenform

CCPP Timelkam



Steam turbine failure calculations

CCPP Timelkam



Foundation slab under construction

CCPP Timelkam

Complete turbine foundation finished

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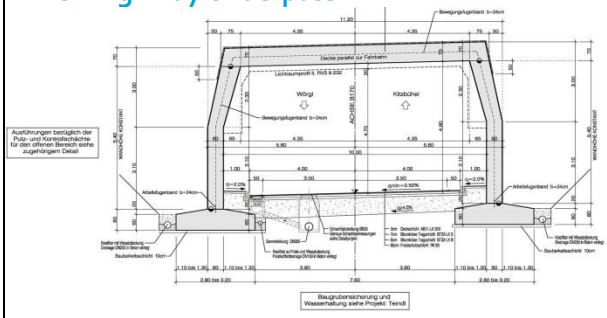
Road Construction

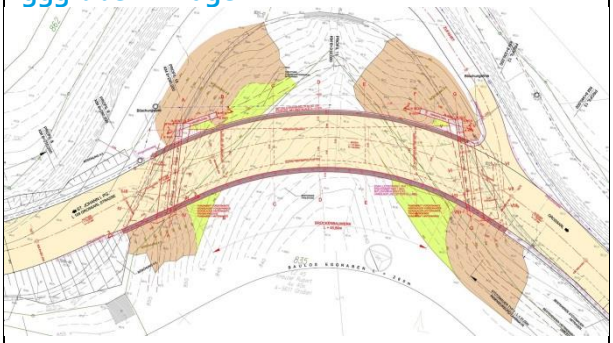
Complete design of roads, highways and expressways

Brixen highway underpass



Cross section

Egggraben-Bridge



General layout

Limberg / Zell am See

Unusual traffic distribution circle

Tauern Spa car parking

Detail design of parking area, dewatering design

Ebster Zell am See

Visualisation of new bypass road

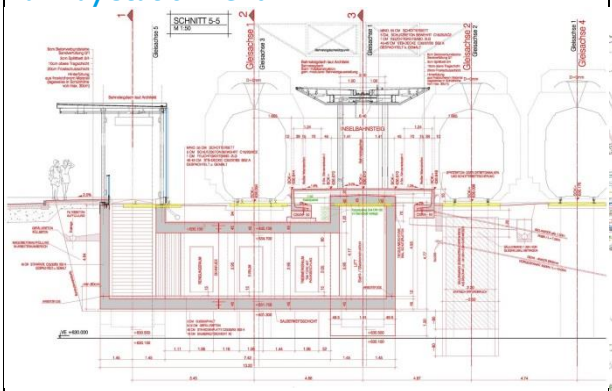
Ebster Zell am See

Visualisation of new bypass road

Railway Engineering

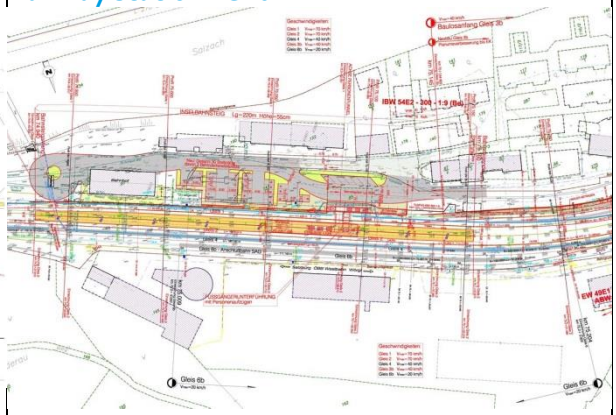
Complete design of railway station and lines

Railway station Lend



Cross section

Railway station Lend



General layout

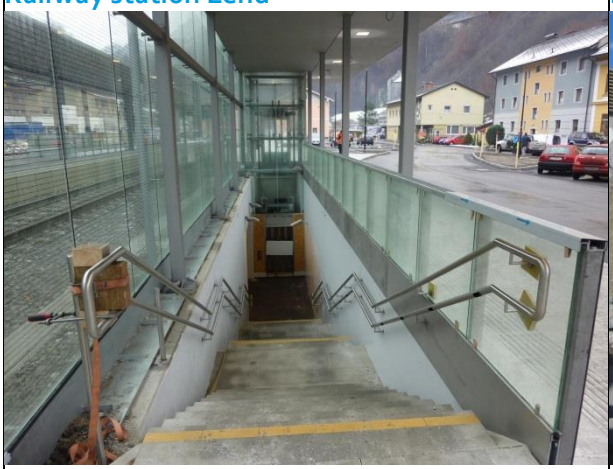
Railway station Lend under construction

Railway traffic is not interrupted

Railway station Lend

Station finished

Railway station Lend



Walkway underpass

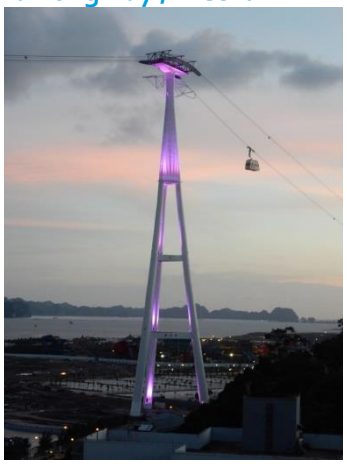
Railway station Bruck

Road underpass

Cable Car Highlights

Up to now we have designed the 6 highest cable car towers in the world!
Site supervision is also included in our services.

230-ATW Ha Long Bay / Vietnam



Highest cable car tower in the world 188,88m!

230-ATW Ha Long Bay / Vietnam

View from top station to bottom station

Bana Hills / Vietnam

2 cable car stations and distribution building

Bana Hills / Vietnam

Distribution building inside view

30-TGD Hon Thom – Phu Quoc / Vietnam

Next 3 highest cable car towers worldwide

30-TGD Hon Thom – Phu Quoc / Vietnam

Drive station near seaside

Tourism Infrastructure Buildings

Tauern Spa Kaprun

View towards West

Hotel Dachsteinkönig Gosau

Front view

Hotel Schloss Lebenberg Kitzbühel

Helicopter view

Ferry Porsche Congress Center Zell am See

Inside view

Ferry Porsche Congress Center Zell am See

Architectural view – Winning project

Hotel Forsthofalm

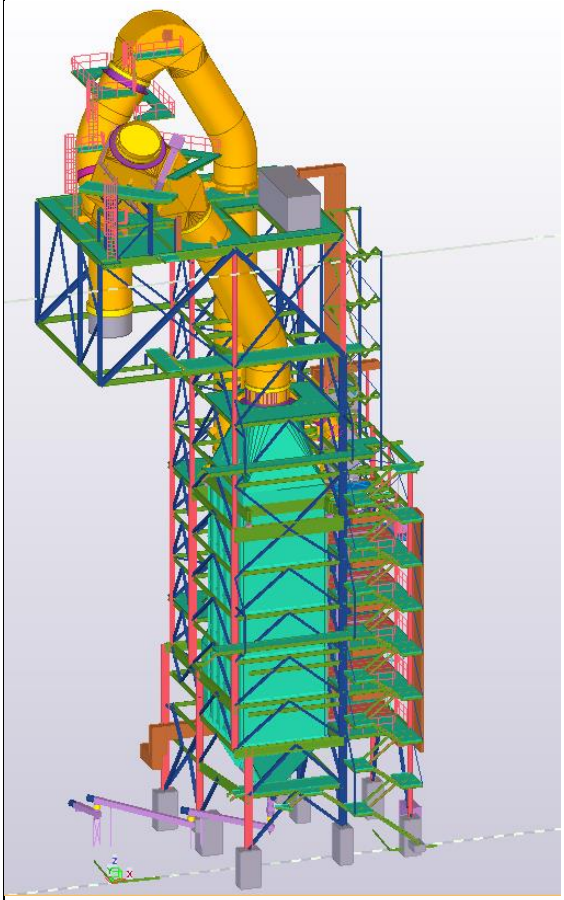
Complete hotel in wood structure

Design and Construction of Industrial Buildings

Wismar / Germany

Egger chip board factory

Beckum / Germany



YARA Denox for Cement factory

Hexham / United Kingdom

Egger chip board factory

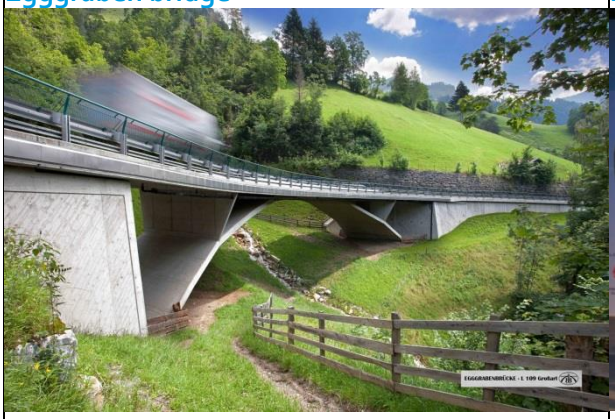
Rion des Landes / France

Egger chip board factory

Bridge constructions

Together with Technical University of Vienna and Government of Salzburg province BauCon received the *fib*- Award 2014 for outstanding concrete structures!

Egggraben bridge



Best concrete bridge worldwide 2014

fib-Award 2014

Receiving the award in Mumbai 2014

Egggraben bridge

Bridge under construction

Heldenhain bridge crossing the railway lines

Bridge steel structure lifted by crane at night

Heldenhain bridge

Suspended Urstein bridge *)

Finished	Crossing the Salzach river in Austria

Protective Structures

Protection against avalanches, mudflow or rockfall

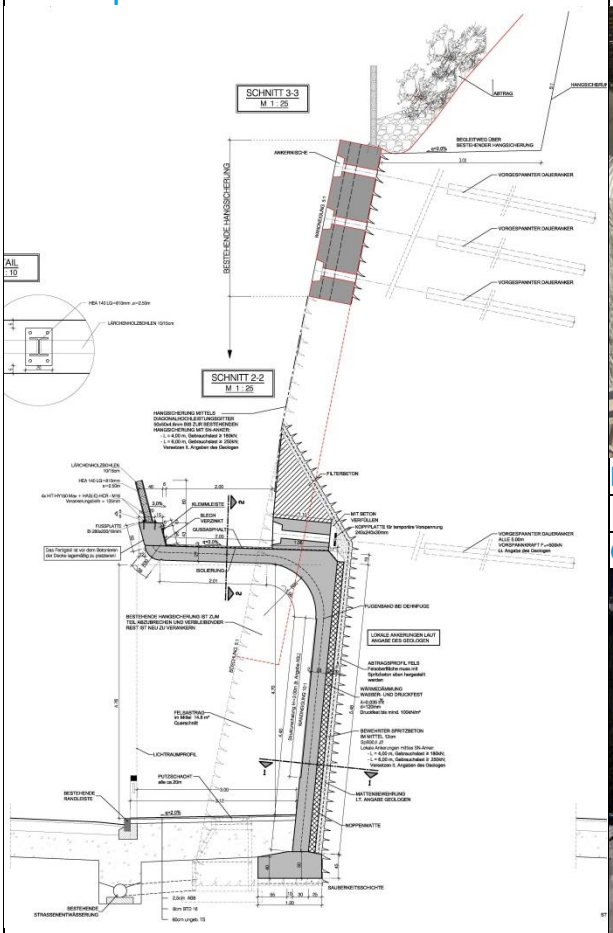
Bärental Großglocknerstraße Austria

Avalanche and rockfall protection

Mudflow overpass Taxenbach Salzburg

Mudflow over railway into river

Rockfall protection structure Hasenbach



Typical cross section

Hasenbach Salzburg

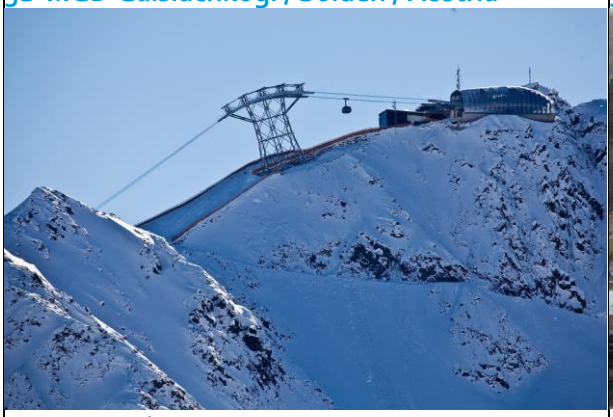
Protection of walkway and highway

Gramais Tirol

Avalanche protection of road and walkway

Constructions on Permafrost

3S-MGD Gaislachkogl / Sölden / Austria

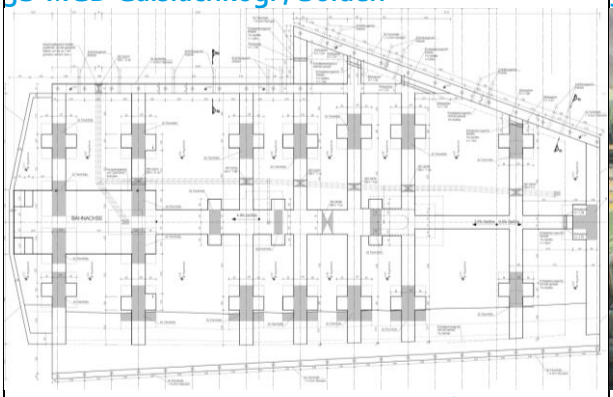


Tower 3 and Top Station

3S-MGD Gaislachkogl / Sölden

Tower 3: Tank below foundation

3S-MGD Gaislachkogl / Sölden



Top Station: Truss beams and single foundations

3S-MGD Gaislachkogl / Sölden

Top station: Truss beams under construction

3S-MGD Pardatschgrat / Ischgl / Austria

Area of new Top station and Tower 5

3S-MGD Pardatschgrat / Ischgl – Top station

Single foundations and lifting columns

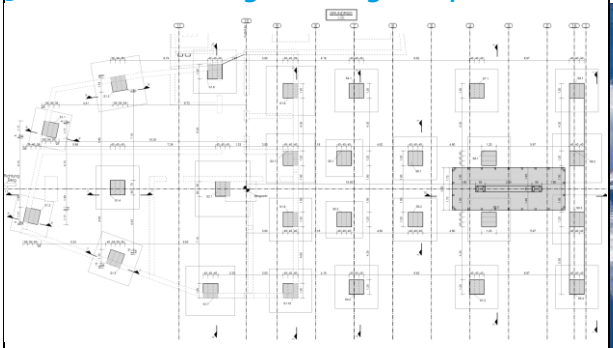
3S-MGD Pardatschgrat / Ischgl – Tower 5

Connection of 4 single foundations with beams in order to exclude differential deformations between foundations

3S-MGD Pardatschgrat / Ischgl – Top station

Concrete structure finished

3S-MGD Pardatschgrat / Ischgl – Top station



Single foundations and lifting columns

150-ATW Piz Val Gronda / Ischgl / Austria

Tower 2 und Top station on permafrost

150-ATW Piz Val Gronda / Ischgl

Top station: Permafrost unfreezing during excavation and anchoring measures

150-ATW Piz Val Gronda / Ischgl

Top station finished

Mountain Deformations

Example 6/8-Chairlift Gondola Detachable Riederalpe – Blausee – Moosfluh / Switzerland

Geological conditions / glacier

Aletsch glacier at 1900

Glacial activity (melting)

Aletsch glacier 2015

Skiing area Aletsch-Glacier / Moosfluh

Map of skiing area

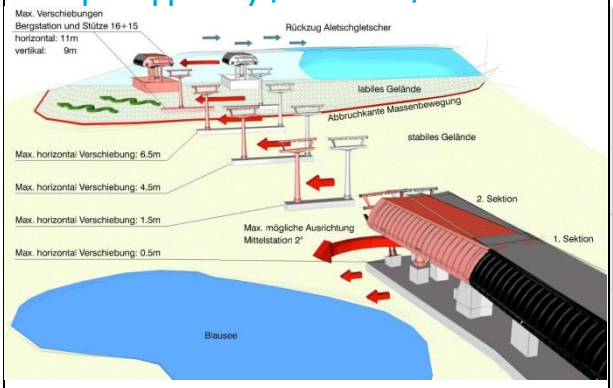
Top station:

2014 predicted deformations over next 25 years:

Horizontal 9,0 – 11,0m
Vertical 5,5 – 7,0m

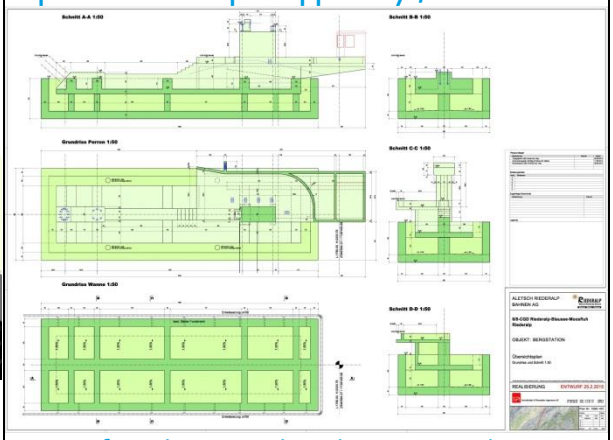
Real deformations in September 2016:
2cm per day horizontal!
This will be about 7m a year!

Concept Doppelmayr/Garaventa/Baucon



Top station and towers follow the mountain deformation

Top station concept Doppelmayr/BauCon



Station foundation is placed into an rigid concrete tube

BAUCON

Employees, equipment, contact details

- **Currently employed staff:**
  3 consult engineers (C.E.O.s and owners)
  14 master degreed engineers
  2 bachelor degreed engineers
  13 college engineers
  12 draftsmen
  4 employees in the administration
  Total: 48 employees (m/f).

- **Equipment:**
  Used software:
  AutoCAD
  Civil 3D
  SIBACAD
  Tekla Structures 3D
  ANSYS
  RFEM
  RSTAB
  Siemens NX
  SCIA and many more...

- **Contact:**
  For international projects please contact our office in Vienna!

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