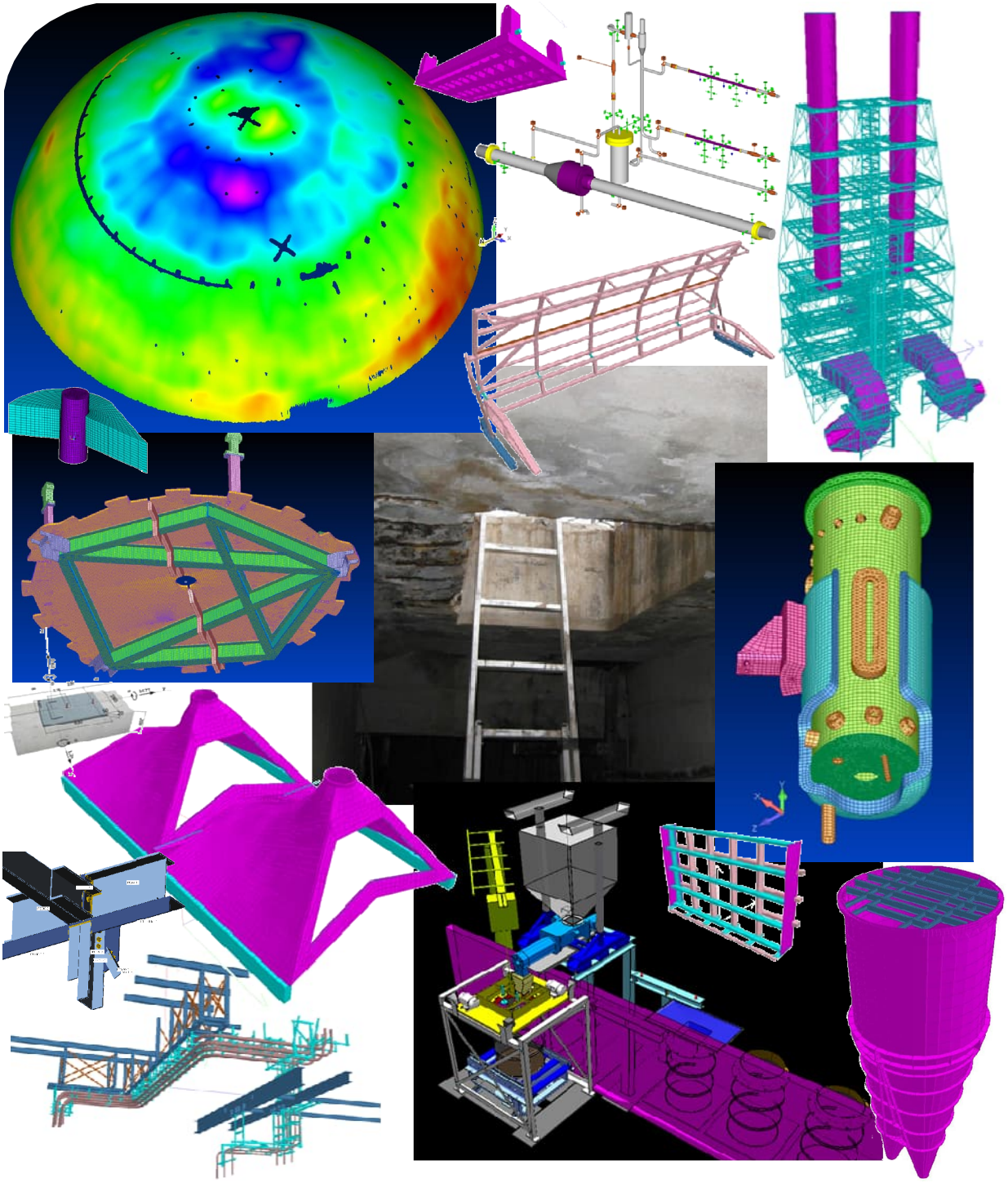
References



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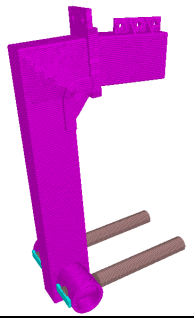
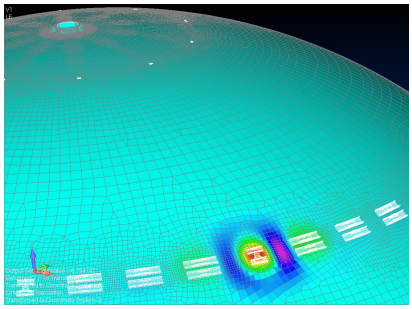
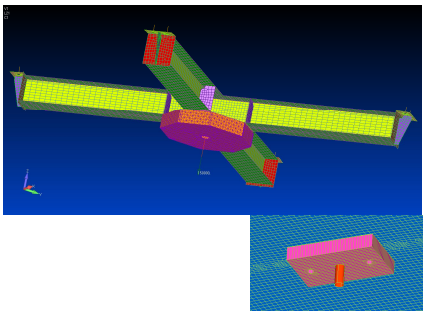
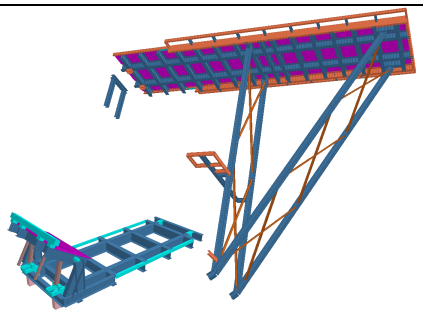
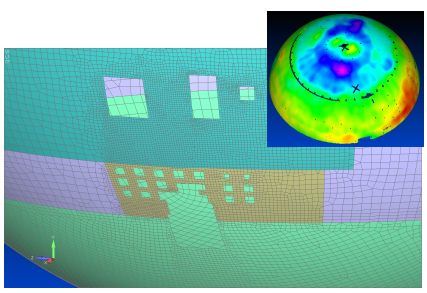
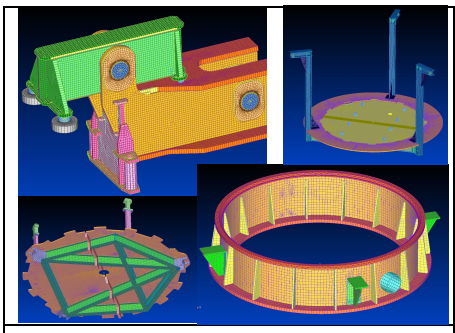
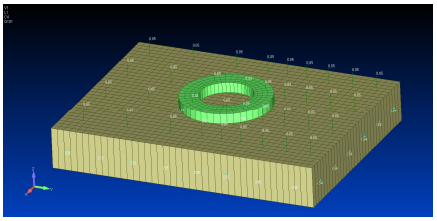
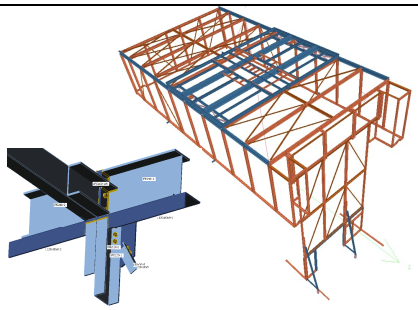
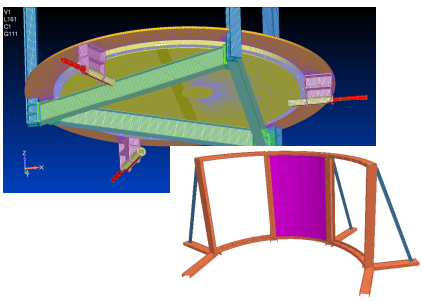
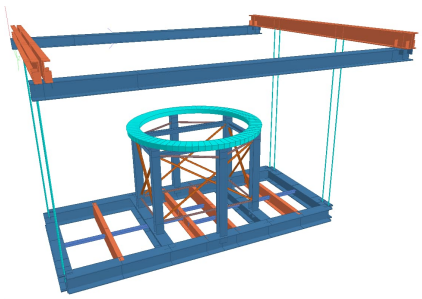
Content

Nuclear Technology – Dismantling

Dismantling of Concrete Structures

	**Nuclear Technology – Dismantling of Power Plant Stade** Disassembly of supporting concrete parts of the reactor pool Customer: E.ON Anlagenservice Service: Structural calculation of disassembly situations of weakened concrete walls and columns as well as temporary support structures made of steel for the disassembling
	**Nuclear Technology – Dismantling of Power Plant Stade** New development of a crane system (15 t) for the disassembly of concrete segments (20 t) in the reactor building Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design incl. shell buckling of the containment spherical shell (diameter 48 m, R/t=960) with pole nozzle reinforcement and brackets for the circular railway acc. to DIN EN 1993 und VDI 2230
	**Nuclear Technology – Dismantling of Power Plant Stade** New development of support structures for the assembly of a new reactor building crane Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design of load attachment points at the containment spherical shell (15 t lifting load) and rails on the former crane bridge girder acc. to DIN EN 1993 and VDI 2230, application of “fluid” metal MM1018FL
	**Nuclear Technology – Dismantling of Power Plant Stade** New development of handover platform and transport cart for the evacuation of concrete segments (20 t) from the reactor building Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design of the steel structures incl. movable tilting table at the transport cart acc. to DIN EN 1993
	**Nuclear Technology – Dismantling of Power Plant Stade** Backfitting of openings without reinforcement in the containment of the reactor building Customer: MAX STREICHER GmbH & Co. KG Service: Evaluation of the quality class on basis of the fabrication tolerance as well as structural proof (shell buckling) of the containment spherical shell (diameter 48 m, R/t=960) acc. to DIN EN 1993

Dismantling of large-size Components

	**Nuclear Technology – Dismantling of Power Plant Neckarwestheim** New development of steel structures for the disassembly of the bottom part (243 t) of the reactor pressure vessel Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design of several support structures acc. to DIN EN 1993 (DIN EN 13155)
	**Nuclear Technology – Dismantling of Power Plant Neckarwestheim** Setting down (243 t) of the reactor pressure vessel in the fuel element storage pool Customer: Uniper Anlagenservice GmbH Service: Structural review of the existing floor of the fuel element storage pool under loading of the bottom part of the reactor pressure vessel on a skirt type support
	**Nuclear Technology – Dismantling of Power Plant Neckarwestheim** New development of a modular steel hall for containment of the demolition work area Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design of a modular steel hall above the spent fuel storage pool incl. consideration of the assembly acc. to DIN EN 1993
	**Nuclear Technology – Dismantling of Power Plant Neckarwestheim** Alteration of a working platform for the dismantling oft he insulation in the reactor pit with a robot, Construction of a mock-up as testing station for the removal of the insulation Customer: Uniper Nuclear Services GmbH Service: Structural calculation and design of the platform and the mock-up acc. to DIN EN 1993-1
	**Nuclear Technology – Dismantling of Power Plant Obrigheim** Fabrication and assembly of a lifting system for the disassembly of the reactor pressure vessel Customer: E.ON Anlagenservice Service: Structural calculation of a moving equipment with strand jack as well as a lifting platform with rotary table and other auxiliary structures acc. to DIN EN 13001 and DIN EN 1993-1

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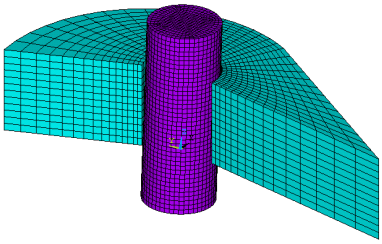
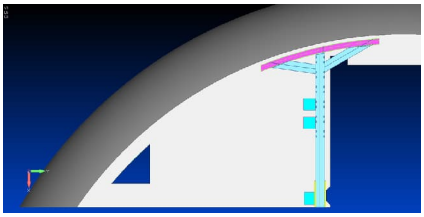
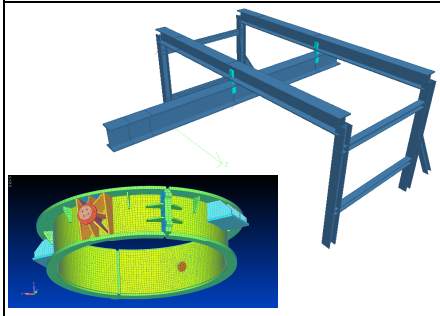
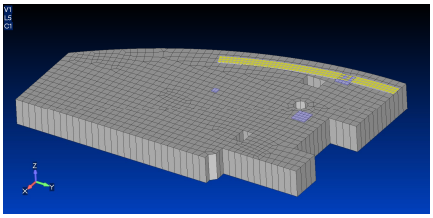
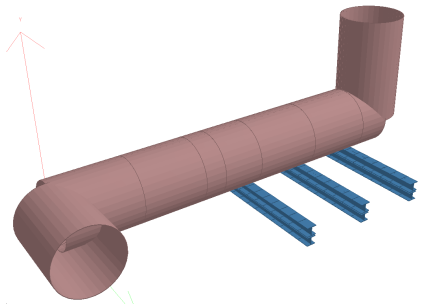
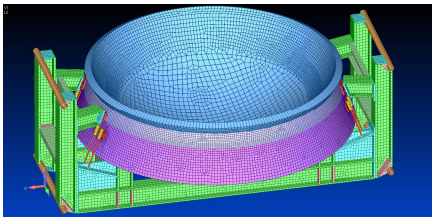
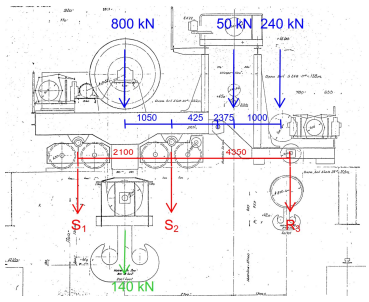
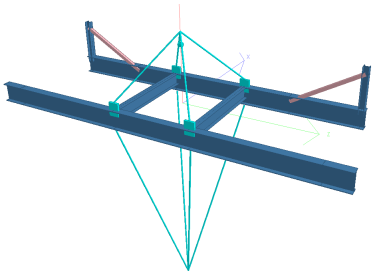
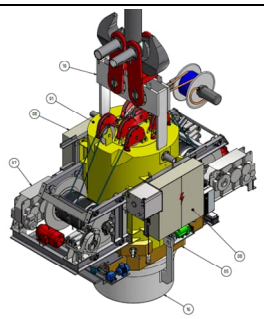
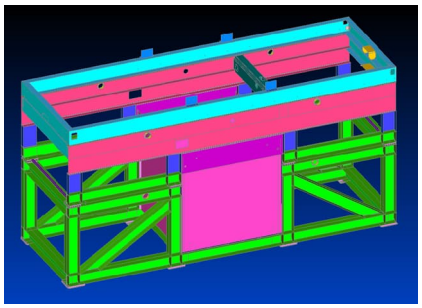
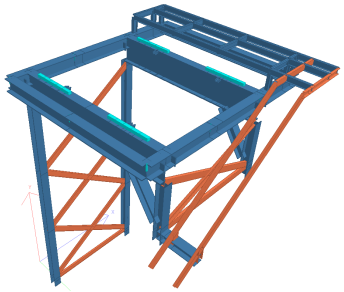
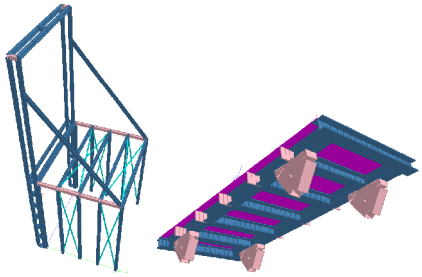
	**Nuclear Technology – Dismantling of Power Plant Würgassen** Disassembly and decontamination of the dished end with a weight of approx. 48 t Customer: E.ON Anlagenservice Service: Elasto-plastic structural calculation of the attachment points during lifting, turning and putting down of the dished end acc. to KTA 3905 und DIN 18800
	**Nuclear Technology – Dismantling of Power Plant Lingen** Proof of an existing reinforced concrete structure under loading with a crane and strand jacks (ca. 220 t) Customer: Uniper Anlagenservice GmbH Service: Structural calculation of the reinforced concrete ceiling and walls B300 / St IIIb acc. to DIN EN 1992 as well as review of the existing reinforcement
	**Nuclear Technology – Dismantling of Power Plant Lingen** New development of steel structures for the disassembly of several steam converters (each about 170 t) Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design of the steel structures (e.g. gantry crane, lifting bandage) acc. to DIN EN 1993
	**Nuclear Technology – Dismantling of Power Plant Lingen** Proof of an existing structure of reinforced concrete under loads due to a crane and stand jack facility (approx. 200 t), retrofitting of the concrete ceiling with CFK lamination Customer: RWE Power AG Service: Structural calculation of the ceiling of reinforced concrete B300 / St IIIb acc. to DIN EN 1992 as well as check of the existing reinforcement

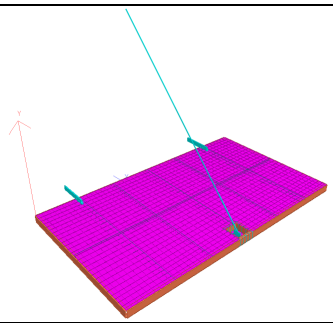
	**Nuclear Technology – Dismantling of KKW Mühleberg** Take-down of a main pipe (9,2 t) for a Separator / Heat-Exchanger in Switzerland Customer: Uniper Nuclear Services GmbH Service: Structural calculation of the load transfer into the existing building (steel platform and concrete floor) when putting down the pipe on the floor for breakdown
	**Nuclear Technology – Dismantling of Barsebäck (Sydkraft), Sweden** Fabrication of a turning frame for the dismantling oft he lower part (42 t) of the reactor pressure vessel Customer: Uniper Anlagenservice GmbH Service: Structural calculation and design of the turning frame in several positions oft he turning process acc. to DIN EN 13155 as well as analysis of the load transfer into the building via steel structures
	**Nuclear Technology – Dismantling of Power Plant Unterweser/Grafenrheinfeld** Check of the existing reactor building crane under the load of the steam generator to be disassembled (360 to and 300 to) Customer: RWE Power AG Service: Structural check of the reactor building cranes under a load which exceeds the nominal capacity for the lifting load
	**Nuclear Technology – Dismantling of Power Plant Stade** Disassembly of the reactor building crane girders Customer: Uniper Anlagenservice GmbH Service: Structural calculation and proof of a spreader frame and load attachment points for the transport of the disassembled parts bridge girders acc. to DIN EN 1993

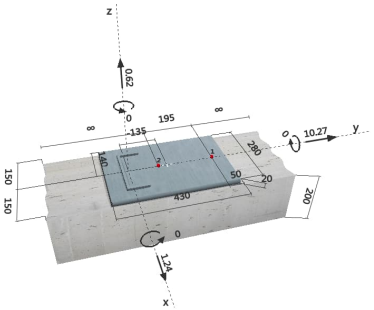
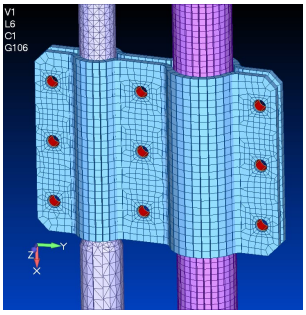
Equipment for Safe Transport of Activated Components

	**Nuclear Technology – Dismantling of Power Plant Isar I** Removal and packaging of contaminated material from the reactor pool Customer: E.ON Anlagenservice Service: Structural calculation of a shielding jacket and associated packaging station under consideration of different lifting conditions acc. to KTA 3902, VDI 2230, DIN 15018 and DIN 18800

	**Nuclear Technology – Dismantling of contaminated Material** Development of a packaging station for contaminated material in Konrad containers Customer: EWN Entsorgungswerk für Nuklearanlagen GmbH Service: Structural calculation of a packaging station under consideration of differing operation and transport situations acc. to KTA 3902, KTA 3905, VDI 2230, DIN 15018 and DIN EN 1993
	**Nuclear Technology – Dismantling of Power Plant Obrigheim** New development of a gantry with enclosure for a 120 t crane for relocating Castor vessels during the disassembly of the power plant Customer: NKM Noell Special Cranes GmbH Service: Structural calculation and design of the steel structure acc. to DIN EN 1991, KTA 3902, DIN 15018-1 and DASt 010 as well as proof of stability against overturning acc. to DIN 15019-1
	**Nuclear Technology – Dismantling of Power Plant Obrigheim** New development of different steel structures and evaluation of the existing building for the disassembly of the power plant Customer: Babcock Noell GmbH Service: Structural design of an as an air lock (height 5m, length 17m) operating steel hall structure, a support frame for the lock cart (allow. gross weight approx. 60 t) as well as (partly) a bridge structure for the lock cart in the existing building (length 16m, max. span 4.9m) acc. to DIN 18800. Participation with the evaluation of the load transfer from the lock cart into the existing building.

Miscellaneous

	**Nuclear Technology – Dismantling of Reprocessing Plant Karlsruhe (WAK)** New development of a truck hatch (approx. 7m x 4m) for the disassembly of the reprocessing plant Customer: Babcock Noell GmbH Service: Structural calculation and design of the steel structure acc. to EC3 and wall anchor plates acc. to ETAG

	**Nuclear Technology – Dismantling of Reprocessing Plant Karlsruhe (WAK)** New development of an angled sliding gate (approx. 3.3m x 4.5m x 6.0m) for the disassembly of the reprocessing plant Customer: Babcock Noell GmbH Service: Structural calculation and design of the steel structure acc. to EC3
	**Nuclear Technology – Reprocessing Plant Karlsruhe** Design of different subsequent anchorings under consideration of the increased requirements in nuclear pants and problems with neighboring anchors Customer: Babcock Noell GmbH Service: Structural calculation of the subsequent anchoring acc. to ETAG
	**Nuclear Technology – Dismantling of Power Plant KKW Isar** Removal of 145 KFMGR pipes with disassembly safety device (special-purpose clamp) between pipe and tension rod Customer: Uniper Nuclear Services GmbH Service: Structural calculation of the pre-stressed special-purpose clamp under consideration of self-weight during cut-off of the pipes
 Foto: Babcock Noell GmbH	**Nuclear Technology – Dismantling of Power Plant Phadec** New development of vessels for the treatment of radioactive fluids for the disassembly of an Italian power plant Customer: Babcock Noell GmbH Service: Participation with the structural design of pressure vessels with steel support structures acc. to EN standards

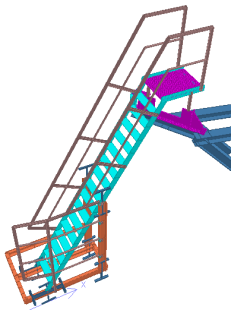
Nuclear Technology – New Development / Alterations

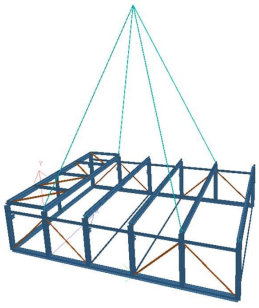
EPR (European Pressurized Reactor / Evolutionary Power Reactor)

Quelle:
http://de.wikipedia.org/wiki/Bild:EPR_OLK3_TVO_fotomont_2_Vogelperspektive.jpg

Nuclear Technology – Power Plant Olkiluoto 3 – Containment Liner
New development of the containment building of a Finnish power plant (height 65m, diameter 46m)

Customer: Babcock Noell Nuclear, Babcock Noell GmbH
Service: Participation with the structural design of assembly situations acc. to DIN 18800 and lining structures acc. to ASME





Nuclear Technology – Power Plant Olkiluoto 3 – Pool Liner
New development of two structures for the reactor pools of a Finnish power plant (height 10m, base area 260m²)

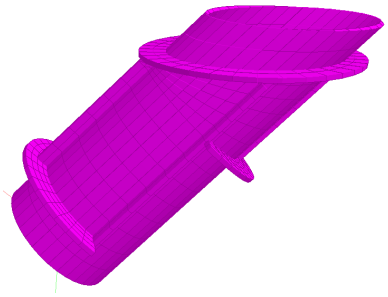
Customer: Babcock Noell Nuclear, Babcock Noell GmbH
Service: Participation with the structural design of steel structures and lining structures acc. to KTA (incl. earthquake loading)

Nuclear Technology – Power Plant Olkiluoto 3 – Pool Liner
New development of two steel halls for temporary enclosure of the reactor pools during the assembly period

Customer: Babcock Noell GmbH
Service: Structural calculation of the halls acc. to DIN 18800 each comprising of two parts with removable roof elements which can be lifted into the building with the crane

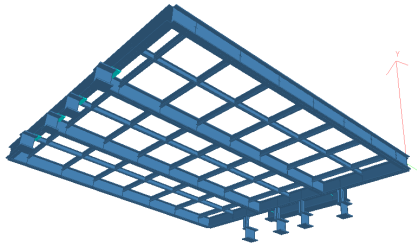
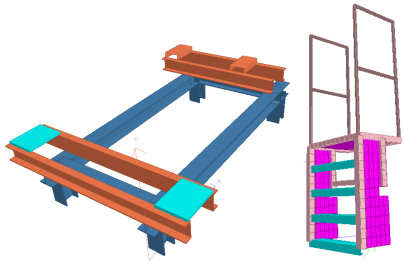
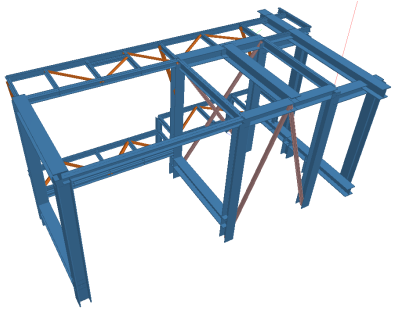
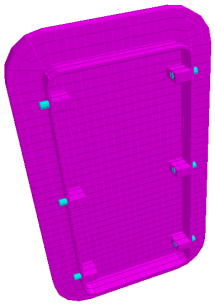
Nuclear Technology – Power Plant Olkiluoto 3 – „In-Containment Refueling Water Storage Tank“ Liner
New development of a water tank pool for a Finnish power plant (height 4m, diameter 33m)

Customer: Babcock Noell Nuclear, Babcock Noell GmbH
Service: Participation with the structural design of the steel structures and lining structures acc. to KTA (with earthquake loading and accidental temperature increase)

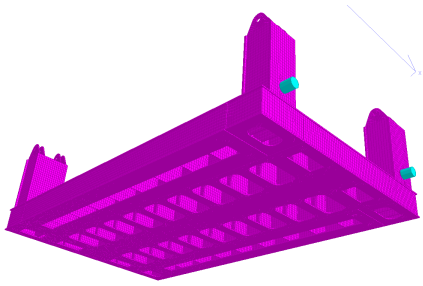
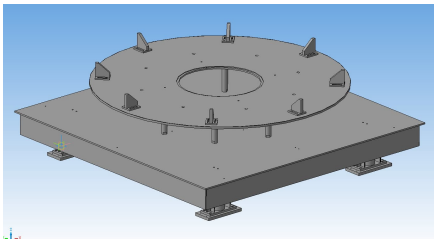
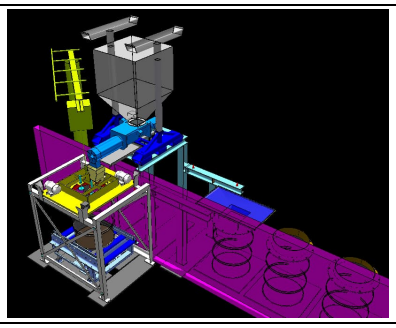
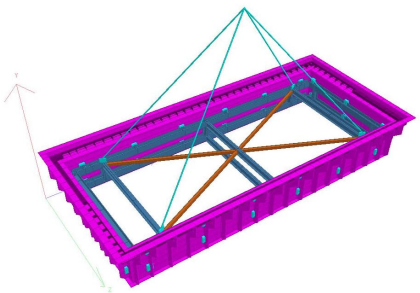
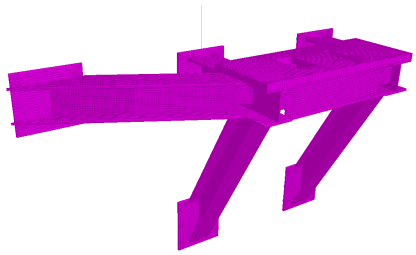


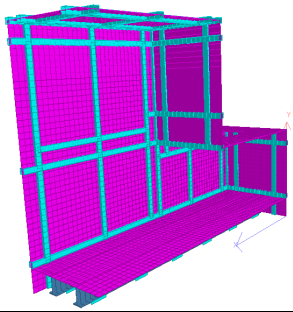
Nuclear Technology - Power Plant Olkiluoto 3 – Tank Liner
New development of six tanks for fluids for a Finnish power plant (height 2.8-4.5m, base area 8.5-15.3m²)

Customer: Babcock Noell GmbH
Service: Participation with the structural design of the lining structures acc. to KTA (with accidental temperature increase)

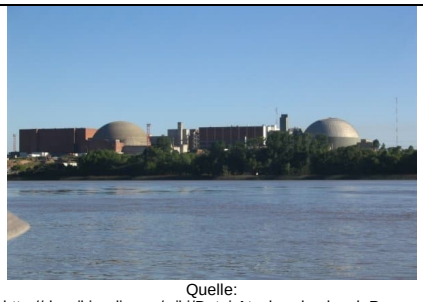
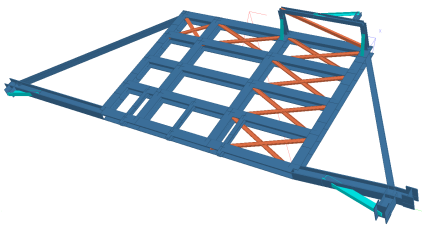
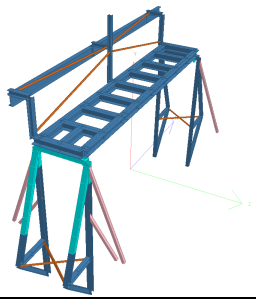
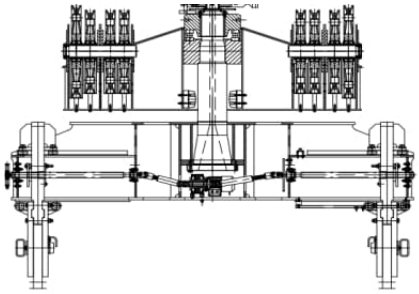
	**Nuclear Technology – Power Plant Olkiluoto 3 – Personnel Air Lock** New development of a personnel air lock for a Finnish power plant Customer: Babcock Noell GmbH Service: Structural design of a temporary support structure hung up at anchor plates for the assembly of the personnel air lock (approx. 34 t) acc. to DIN 18800
	**Nuclear Technology – Power Plant Olkiluoto 3 – RPV Closure Head** New development of technical parts on top of the reactor closure head of a Finnish power plant Customer: Babcock Noell Nuclear, Babcock Noell GmbH Service: Participation with the structural design of technical steel structures acc. to KTA (with earthquake loading)
	**Nuclear Technology – Power Plant Olkiluoto 3 – Turbine Building** New development of the turbine building of a Finnish power plant Customer: Siemens AG, Power Generation Division Service: Check of structural calculations of steel support structures for pipelines and tanks acc. EN 1993-1 and Finnish NA
	**Nuclear Technology – Power Plant Flamanville – Pool Lining** New development of a power plant in France Customer: Babcock Noell GmbH Service: Structural analysis of sealing doors, access doors and man holes in different pools and tanks with earthquake loading acc. to EC3
	Nuclear Technology – Power Plant Taishan – Access Doors and Sealing Doors New development of a power plant in China Customer: Babcock Noell GmbH Service: Structural analysis of sealing doors and access doors as well as a filter exchange machine with earthquake loading

Other Nuclear and Reprocessing Plants

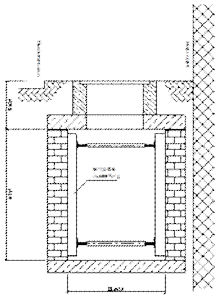
	**Nuclear Technology – Research Reactor ITER** Cargo lift platform for the nuclear fusion research reactor ITER Customer: NKM Noell Special Cranes GmbH Service: Feasibility study about the carrying capacity and serviceability of the cargo lift platform for the transport of the air buffered 120 t cask acc. to KTA 3902, VDI 2230 and DIN 15018
	**Nuclear Technology – Power Plant Fangchenggang** New development of a rotary table for the measurement of the dose rate of loaded transport barrels Customer: Canberra GmbH Service: Finite element analysis (FEA) of the rotary table and design of the American steel acc. to EC3
	**Nuclear Technology – Power Plant Fangchenggang** New development of a filling station for contaminated residue with silo, filling funnel, radiation protection wall and cascade for cleaning of the spiral conveyor Customer: Babcock Noell GmbH Service: Structural calculation of the support structure of the filling funnel and the silo platform acc. to EC3. 3D design and workshop drawings of the filling station with attachments
	**Nuclear Technology – Reprocessing Plant ICEDA – Locks** New development of a reprocessing plant in France Customer: Babcock Noell GmbH Service: Structural analysis of locks, plugs, bulkheads and enclosures designed for radio protection and earthquake loading acc. to EC3
	**Nuclear Technology – Reprocessing Plant ICEDA – Wall Brackets for Lifting Bulkheads** New development of a reprocessing plant in France Customer: Babcock Noell GmbH Service: Structural analysis of wall brackets (for assembly of diverter pulleys) acc. to EC3. Through this structure, bulkheads with a total weight of approx. 64 t will be lifted.

	**Nuclear Technology – Reprocessing Plant HOLTEC** New development of a reprocessing plant in the Ukraine Customer: Babcock Noell GmbH Service: Structural analysis and design of components inside the safety zone with earthquake loading acc. to EC3

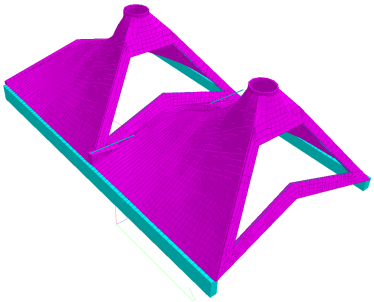
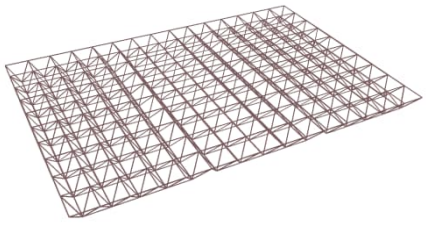
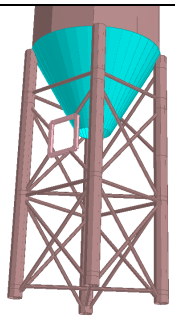
Alterations

 Quelle: http://de.wikipedia.org/wiki/Datei:Atucha_desde_el_Parana	**Nuclear Technology – Power Plant Atucha II** Structural alteration and renovation of a power plant in Argentina Customer: Babcock Noell GmbH Service: Structural check of several structures due to load increase acc. to DIN 18800
	**Nuclear Technology – Power Plant Grohnde** Erection of a temporary load distribution frame for parts of a crane to be assembled during refurbishment activities at the reactor building crane Customer: NKM Noell Special Cranes GmbH Service: Structural calculation, frequency analysis and iterative optimisation of the load distribution frame to be designed for earthquake loading acc. to DIN 15018, KTA 2201 und DIN EN 1993
	**Nuclear Technology – Power Plant BKW Mühlenberg** New development of a sky walk for the new reactor building crane Customer: NKM Noell Special Cranes GmbH Service: Structural calculation, frequency analysis and optimisation of the sky walk for very high earthquake accelerations acc. to DIN 15018, KTA 2201, KTA 3205.1, KTA 3902, DIN 18800 and DIN EN 1993
	**Nuclear Technology – Transport Container Storage Gorleben** Renewal of a two-lug spreader beam in the transport container storage Customer: NKM Noell Special Cranes GmbH Service: Structural analysis of the top and bottom part of a two-lug spreader beam acc. to DIN 15018

Assessments & Expert Opinions

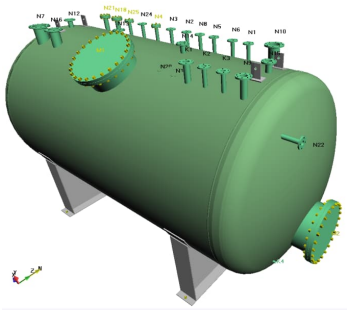
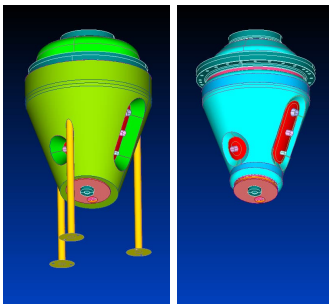
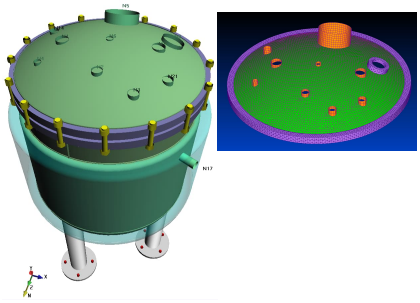
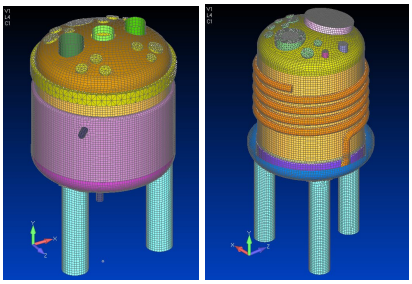
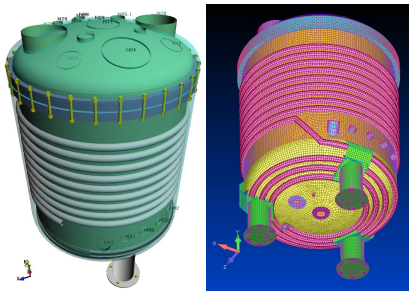
	**Assessment – Engineering Structures of the Telekom** Assessment of subterranean engineering structures Customer: Deutsche Telekom AG Service: Assessment of subterranean engineering structures
	**Expert Opinions - Engineering Structures of the Telekom** Compilation of expert opinions in regards to structural integrity of subterranean engineering structures Customer: Deutsche Telekom AG Service: Expert opinions in regards to corrective maintenance and replacement of engineering structures

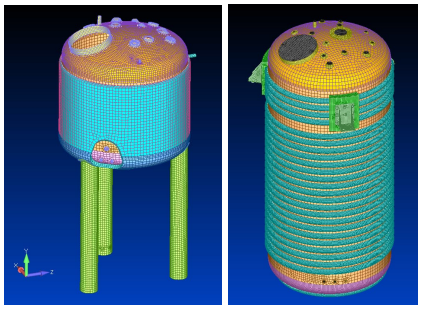
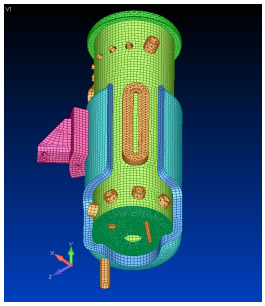
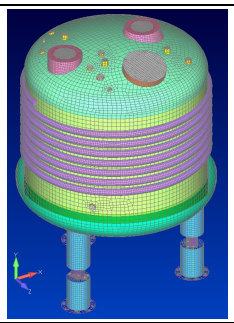
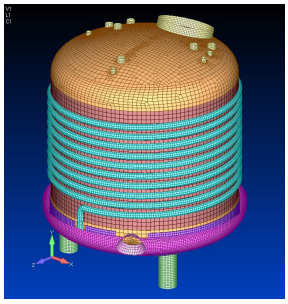
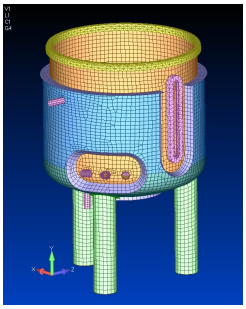
Corrective Maintenance

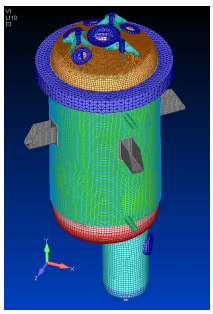
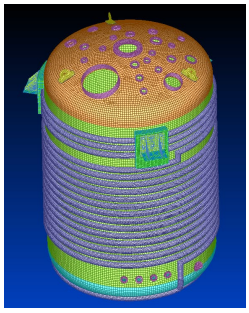
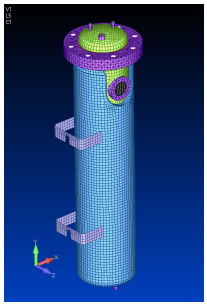
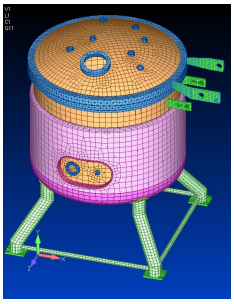
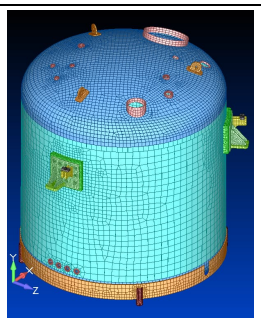
	**Corrective Maintenance – Concrete Shell Roof Rexroth** Reinforcement of an existing concrete shell roof structure of a factory building in Unterfranken, Germany Customer: Ingenieurbüro Ruf/Bosch Rexroth AG Service: Structural analysis of the existing and retrofitted structure incl. subsequent tendons acc. To DIN 1045
	**Corrective Maintenance – Roof of a Gymnasium** Corrective maintenance of roof of a gymnasium (approx. 30 x 44.5 m span) Customer: Ingenieurbüro Ruf Service: Structural calculation of the existing Mero spatial framework under several new load situations as well as structural evaluation of possible concepts for corrective maintenance
	**Corrective Maintenance – Spent Grain Storage Silo** Corrective maintenance of a spent grain storage silo in Ethiopia Customer: GEA Brewery Systems GmbH Service: Structural calculation of the support structure of the silo under wind and earthquake loading acc. To UBC 1997 and Eurocode 3 as well as related workshop drawings

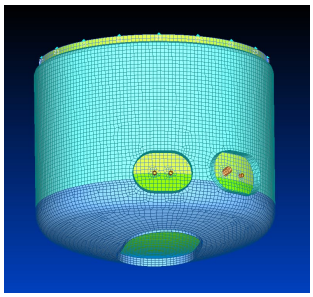
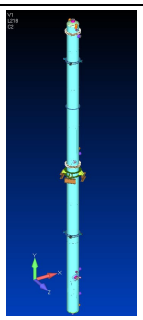
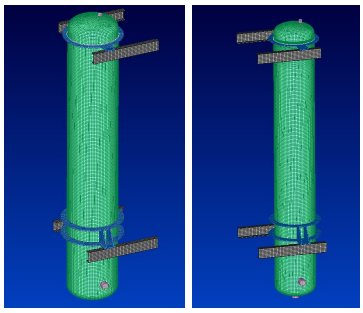
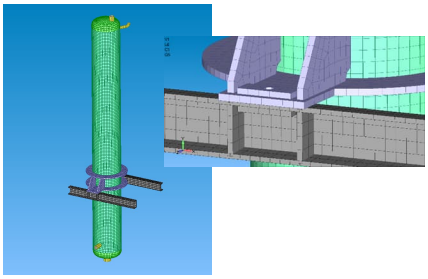
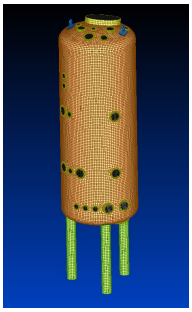
Plant Engineering – Tank Construction

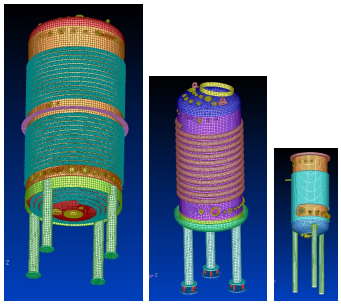
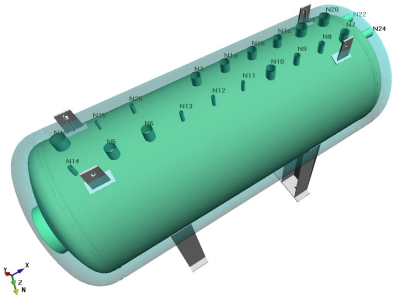
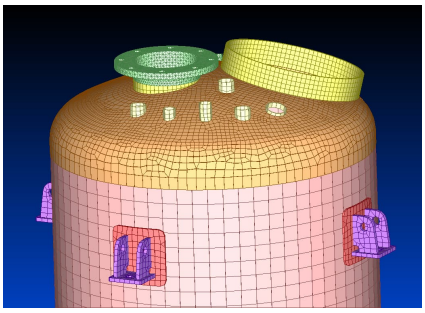
Pressure Vessels

	**Tank Construction – Pharma Vessels in Solothurn (Switzerland)** New development of six pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of vessels on legs, saddles, skirts and brackets acc. To AD2000 Merkblätter (local checks acc. To DIN EN 13445 and PD 5500) under consideration of earthquake acc. To SIA 261
	**Tank Construction – Solid Collection Vessel** New development of a solid collection vessel Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel with jacket and flange acc. To AD2000 Merkblatt S4
	**Tank Construction – Pharma Vessels in Turkey** New development of eight pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on legs acc. To AD2000 Merkblätter (analytic and FEA) under consideration of mixer loading
	**Tank Construction – Pharma Vessels in Turkey** New development of twelve pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels with full or half-pipe jackets on legs acc. To AD2000 Merkblätter (analytical and FEA)
	**Tank Construction – Pharma Vessels Marburg** New development of nine pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on legs and with half-pipe jacket acc. To AD2000 Merkblätter (analytic and FEA) under consideration of mixer loading

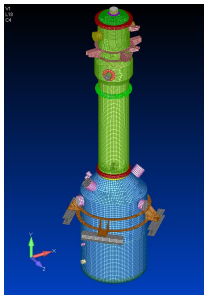
	**Tank Construction – Pharma Vessels Bern** New development of eleven pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on legs or brackets and with half-pipe or full jacket acc. To AD2000 Merkblätter (analytic and FEA) under consideration of mixer loading and earthquake acc. To SIA 261
	**Tank Construction – Pharma Vessels in China** New development of three pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on partially non-symmetric brackets and with machined flat head acc. To AD2000 Merkblätter under consideration of earthquake acc. To GB50011
	**Tank Construction – Preparation Vessel in Turkey** New development of a Preparation Vessel Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel on legs and with half-pipe jacket using a novel support structure acc. To AD2000 Merkblätter (analytic and FEA) under consideration of mixer loading and earthquake acc. To TBDY 2018
	**Tank Construction – Preparation Vessel in Oslo** New development of a Preparation Vessel Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel on legs and with half-pipe jacket and an optimised support structure acc. To AD2000 Merkblätter under consideration of earthquake acc. To DIN EN 1998
	**Tank Construction – Intermediate Tank in Biberach** New development of an Intermediate Tank Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel on legs and with jacket and long sight glass acc. To AD2000 Merkblätter

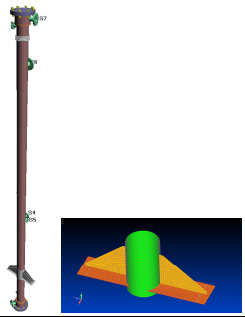
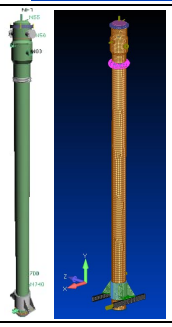
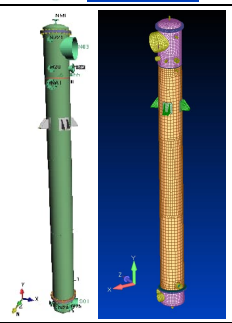
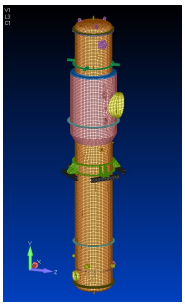
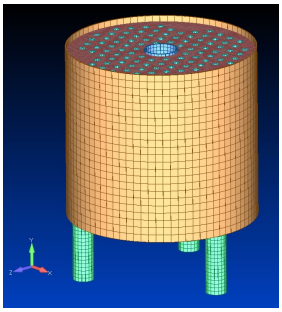
	**Tank Construction – Pharma Vessel in Williston (USA)** New development of a crystallizer Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel on brackets and with baffles anchored in the top head acc. To ASME 2017 (FEA) under consideration of mixer loading
	**Tank Construction – Pharma Vessel in Kankakee (USA)** New development of two pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on brackets and with half-pipe jacket acc. To ASME 2017 (FEA) under consideration of mixer loading and earthquake acc. To ASCE 7-10 as well as fatigue acc. To AD2000 Merkblatt S2
	**Tank Construction – Pharma Vessel in India** New development of three pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of partially non-symmetric on brackets supported vessels acc. To AD2000 Merkblätter under consideration of earthquake acc. To IS 1893
	**Tank Construction – Mobile Pharma Vessels** New development of four mobile pharma vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the mobile vessels acc. To AD2000 Merkblätter under consideration of mixers
	**Tank Construction – Pharma Vessel in Denmark** New development of four pharma vessels for Fujifilm Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on brackets with calibration fixtures acc. To AD2000 Merkblätter under consideration of earthquake acc. To EN 1998-1 (NA) as well as fatigue

	**Tank Construction – Alteration of a Vessel in Australia** Addition of two nozzles incl. opening in the jacket Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel acc. To AD2000 Merkblätter (FEA)
	**Tank Construction – Pressure Vessels in Darmstadt** New development of two pressure vessels Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on brackets with additional horizontal supports acc. To AD2000 Merkblätter under consideration of wind/snow acc. To DIN EN 1991, earthquake acc. To DIN EN 1998 and nozzle loads
	**Tank Construction – CO_2-Dryer/Purifier in USA** New development of Dryer DN800 and Purifier DN700 in Golden, Colorado, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels acc. to ASME Sec. VIII Div. 1 under earthquake load acc. to ASCE 7-22
	**Tank Construction – CO_2-Dryer/Purifier in USA** New development of Dryer and Purifier DN350 in Fort Collins, Colorado, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels acc. to ASME Sec. VIII Div. 1 under earthquake and wind load acc. to ASCE 7-22
	**Tank Construction – Pressure Vessel in Hildesheim** New development of a Bioreactor Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessel on legs acc. to AD2000 Merkblättern incl. proof of fatigue for pressure changes

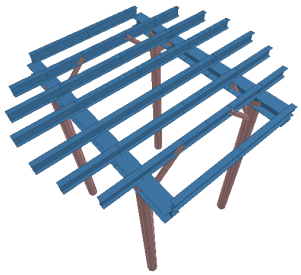
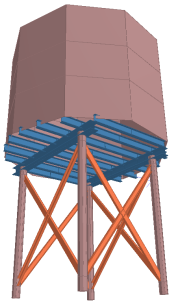
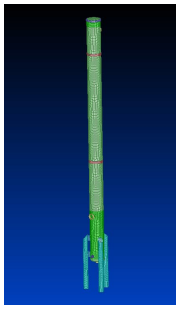
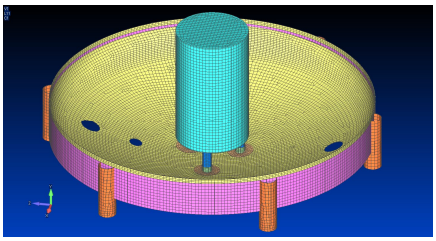
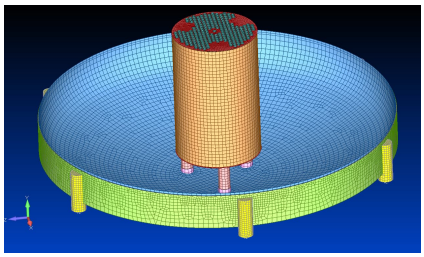
	**Tank Construction – Pressure Vessels in Wilson, NC, USA** New development of three Bioreactors Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on legs acc. to ASME Sec. VIII Div. 1 / AD2000 Merkblättern incl. proof of fatigue for agitator load and pressure changes, earthquake acc. to ASCE 7
	**Tank Construction – Vessels for Brewery in Montreal, Canada** New development of two condensate vessels Customer: Danz GmbH Service: Structural calculation and proof of the vessels on saddles acc. To AD2000 Merkblätter (local checks acc. To DIN EN 13445) under consideration of earthquake acc. To NBCC 2010
	**Tank Construction – Vessel with Agitator, Germany** High resonant buffeting during normal operation of the chosen agitator Customer: GEA Brewery Systems GmbH Service: Frequency analysis of the existing structure as well as of several solution approaches to reduce the arising resonant buffeting

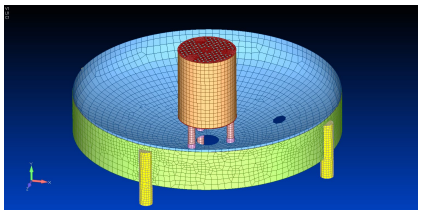
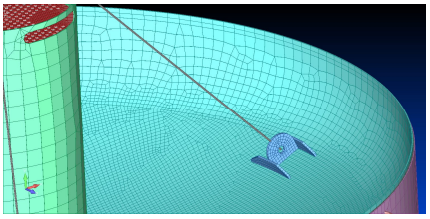
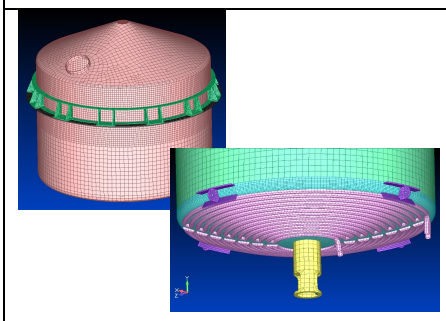
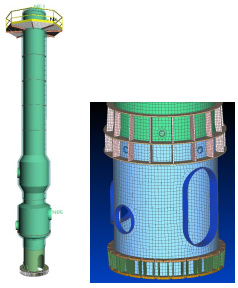
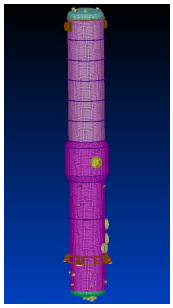
Heat Exchangers

	**Tank Construction – Heat Exchanger in Frankfurt** New development of an evaporator DN1000 Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the evaporator on low brackets (analytical and FEA) acc. To AD2000 Merkblätter under consideration of wind acc. To DIN EN 1991 and nozzle loads as well as a lifting device for the lid
	**Tank Construction – Heat Exchanger in Darmstadt** New development of two heat exchangers Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the vessels on brackets with additional horizontal supports acc. To AD2000 Merkblätter under consideration of wind/snow acc. To DIN EN 1991, earthquake acc. To DIN EN 1998 and nozzle loads

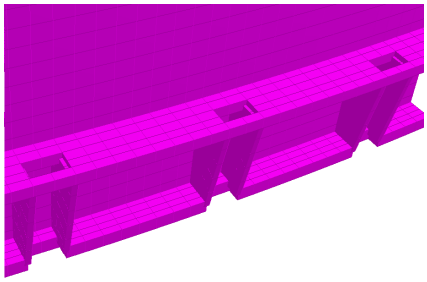
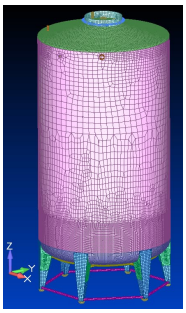
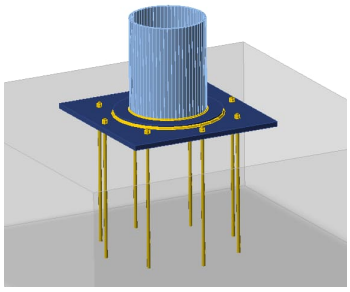
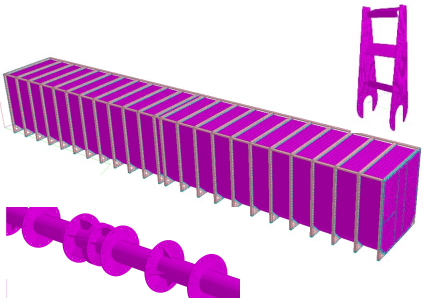
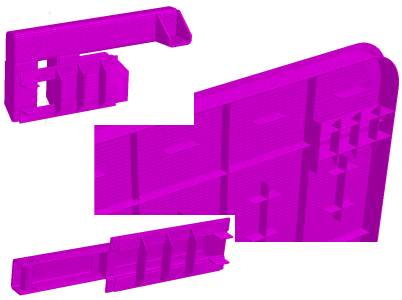
	**Tank Construction – Heat Exchanger in Mainburg** New development of a straight pipe heater Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the heat exchanger on brackets acc. To AD2000 Merkblätter
	**Tank Construction – Heat Exchanger in Karlsruhe** New development of an evaporator DN300 Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the evaporator on low positioned brackets (analytic and FEA) acc. To AD2000 Merkblätter under consideration of earthquake acc. To EN 1998 and nozzle loads
	**Tank Construction – Heat Exchanger in Midleton (USA)** New development of a surface condenser DN600 Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the surface condenser brackets (analytic and FEA) acc. To AD2000 Merkblätter under consideration of nozzle loads
	**Tank Construction – Heat Exchanger in Pernhofen (Austria)** New development of a surface condenser DN1200 Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the condenser on brackets with additional horizontal supports acc. to AD2000 Merkblättern under consideration of earthquake acc. to EN 1998-1
	**Tank Construction – Internal Boiler of Wort Kettle** New development of an internal boiler of a wort kettle for a Brewery in Braunschweig, Germany Customer: GEA Brewery Systems GmbH Service: Fatigue analysis of the internal boiler for different possible pressure ranges acc. to AD 2000 Merkblatt S2

Support Structures for Vessels

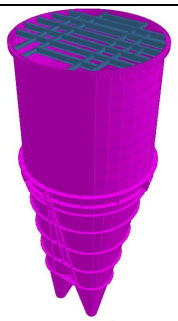
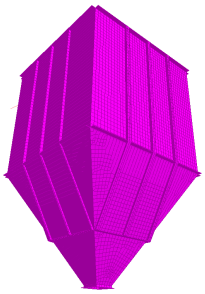
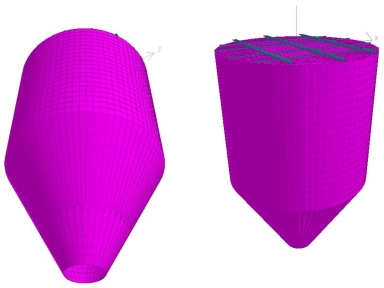
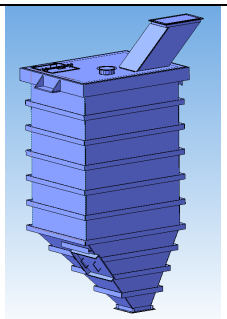
	**Tank Construction – Certification Proof for EC3** Certification of the manufacturer for the fabrication of the vessels according to EC3 Customer: GEA Brewery Systems GmbH Service: Structural sample calculation of a vessel support structure acc. To EC3
	**Tank Construction – Vessels and Tanks for a Brewery** New development of a Brewery with different tank sizes and support structures in the USA Customer: GEA Brewery Systems GmbH Service: Structural and seismic calculation of the vessels and tanks acc. To ASCE 7-05 and IBC 2009 (AISC 360)
	**Tank Construction – Degassing Column for Brewery in USA** New development and erection of a degassing column in Columbia, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the support of a column on legs with additional horizontal brackets under earthquake loading acc. To ASCE 7-10
	**Tank Construction – Wort Kettle with Internal Boiler for Brewery** New development of a wort kettle for a brewery in Chilliwack, Canada Customer: GEA Brewery Systems GmbH Service: Structural and seismic (NBCC) calculation of the support structure acc. To DIN EN 1993 and parts of the vessel acc. To ASME VIII 2010
	**Tank Construction – Wort Kettle with Internal Boiler for Brewery** New development of a wort kettle for a brewery in Montreal, Canada Customer: GEA Brewery Systems GmbH Service: Structural and seismic (NBCC) calculation of the support structure acc. To DIN EN 1993 and parts of the vessel acc. To ASME VIII 2010

	**Tank Construction – Wort Kettle with Internal Boiler for Brewery** New development of a wort kettle for a brewery in Pittsburgh, USA Customer: GEA Brewery Systems GmbH Service: Structural and seismic (ASCE 7) calculation of the support structure acc. To AISC 360 and parts of the vessel acc. To ASME VIII 2019 as well as anchorage acc. To ACI 318
	**Tank Construction – Lifting of a Wort Kettle** New development of a wort kettle (12,5 to) for a brewery in Kulmbach Customer: GEA Brewery Systems GmbH Service: Design of a suitable lifting lug und structural calculation of lifting a complete wort kettle with a crane acc. To AD2000 Merkblätter
	**Tank Construction – Support and Lifting of a Mash Tun Kettle** New development of a Mash Tun Kettle for a Brewery in Golden, Colorado, USA Customer: GEA Brewery Systems GmbH Service: Structural check of the brackets bolted to the vessel and the welded on lifting points acc. to AD2000 Merkblättern
	**Tank Construction – Heat Exchanger in Denmark** New development of a condenser supported on a skirt with access hole and other big openings Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of vessel support, platform support and lifting points of the condenser acc. to AD2000 Merkblättern under consideration of nozzle loads, wind acc. to DIN EN 1991 and earthquake acc. to EN 1998-1
	**Tank Construction – Heat Exchanger Miltonduff** New development of a condenser supported on brackets Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of vessel support and lifting points of the condenser with rather low brackets acc. to AD2000 Merkblättern

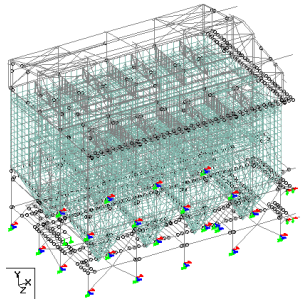
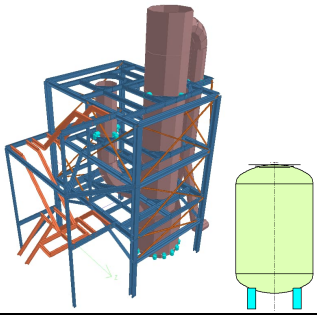
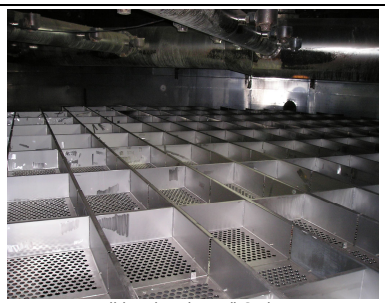
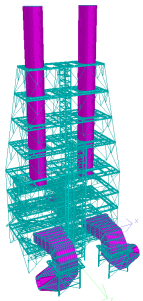
Tanks and Biogas Plants

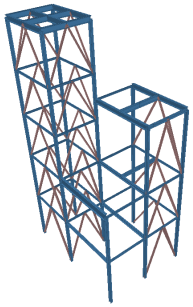
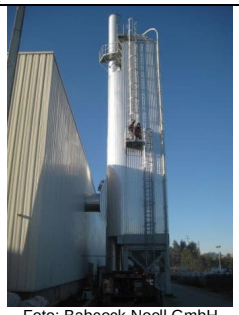
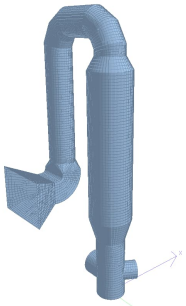
	**Tank Construction – Petrochemical Plant in Ras Tanura** New development of seven containments in Saudi Arabia (diameter 8.5-35m, height 6.5-52.5m) Customer: Babcock Noell GmbH Service: Participation with structural calculation of the containments acc. To API 620 and the nozzles acc. To ASME Boiler & Pressure Vessel Code, Section VIII
	**Tank Construction – Water Tank in Hückelhoven** New development of a water tank in Hückelhoven (diameter 4,25 m, height 9,4 m) Customer: Steinecker GmbH Service: Structural calculation of the water tank under wind, snow, and seismic loads as well as lifting acc. To AD2000 Merkblätter and DIN EN 1993-1 as well as analysis of buckling acc. To DIN EN 1993-1-6
	**Tank Construction – Anchorages for Tanks in Cuba** New development of big tanks (seven types), a silo and a staircase tower for a brewery in Zona Mariel, Cuba Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of subsequent anchorages for tanks and a staircase tower under wind load acc. To NC 46:2017
	**Tank Construction – Biogas Fermenter Tank** New development of a compact fermenter for biogas production. Measurements approx. 3.5m x 3.2m x 22.5m Customer: Schmack Biogas GmbH Service: Structural and seismic calculation of a fermenter incl. agitator shaft acc. To EC3; consideration of very soft support and uneven assembly area
	**Tank Construction – Biogas Fermenter Gate** New development of a fermenter gate for gas tight sealing of a concrete fermenter under overpressure. Measurements approx. 4.5m x 4.5m Customer: Schmack Biogas GmbH Service: Finite element analysis (FEA) of leaf, frame, locking and hinges acc. To EC3

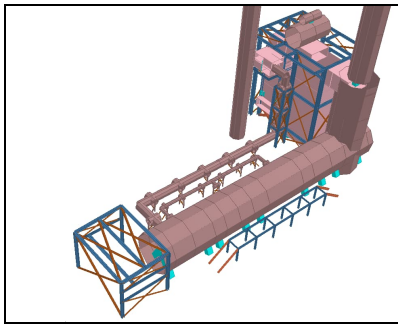
Silos

	**Tank Construction – Slag Silo Montalieu** New development of a silo (height 21m, diameter max. 8m) with asymmetric funnels in France Customer: Fives-Cail Babcock Service: Structural calculation and design of a slag silo supported at three support points acc. To EC3
	**Tank Construction – Batch Plant** New development of a silo (height 7m, width 4m, length 4m) in Brazil Customer: Ingenieurbüro Ruf Service: Structural calculation and design of a silo supported at four support points acc. To EC3
	**Tank Construction – Soda Silo** New development of a silo (height ca. 16m, diameter 10m) in Germany Customer: Ingenieurbüro Ruf Service: Structural calculation and design acc. To DIN18800
	**Tank Construction – Bunker Unit** New development of a bunker unit comprising of 10 bunkers with four different bunker types (measurements approx. 5.6m x 22m x 4.5m) Customer: RCE GmbH Service: Structural design of the bunkers acc. To DIN18800; connection design with finite element analysis (FEA)
	**Tank Construction – Activated Carbon Filter in Cayuga, NY, USA** New development of an activated carbon filter in a skid with small crane Customer: Siloxa Engineering AG Service: Structural design of the filter and the skid acc. to ASME Sec. VIII Div. 1 and AISC 360 for loading due to wind, snow and earthquake acc. to ASCE 7 as well as silo loads acc. to EN 1991-4

Plant Engineering – Environmental Engineering

	**Environmental Engineering – Dedusting Plant in Malaysia** New development of a dedusting plant (height 26 m, width 21 m, length 30 m), investigation of support structure, penthouse and stair tower Customer: Babcock Noell GmbH Service: Structural calculation and design of the supporting steel structure of the plant inclusive connection design acc. To ASCE 7-05, UBC 1997 and AISC 360-05
	**Environmental Engineering – Purification Plant Haldor Topsoe** Design of a purification plant Customer: Luft- und Thermotechnik Bayreuth GmbH Service: Structural calculation and design of the stair tower acc. To IBC 2009 and EN 1993 as well as a emergency water tank acc. To IBC 2009 and AD2000 bulletins
 Bild: Babcock Noell GmbH	**Environmental Engineering – Flue Gas Desulphurisation Plant Moorburg** New development of a flue gas desulphurisation plant (height 35m, diameter 16m) Customer: Babcock Noell GmbH Service: Calculation of the foundation loads
 Bild: Babcock Noell GmbH	**Environmental Engineering – Flue Gas Desulphurisation Plant Boxberg** Retrofitting of a tray in the absorber made of welded stainless steel girders and stainless steel lined structural steel girders (diameter 18m) Customer: Babcock Noell GmbH Service: Structural calculation and design of the steel structure acc. To EC3
	**Environmental Engineering – Flue Gas Desulphurisation Plant Isalnita** Subsequent check and evaluation of the structural calculation incl. the connection design of a stack framework (height 95m, base area 27.5m x 49.5m) Customer: Babcock Noell GmbH Service: Check of the structural calculation and design of the steel structure incl. the implemented connections acc. To EC3

	**Environmental Engineering – Flue Gas Desulphurisation Plants** New development of several flue gas desulphurisation plants in Israel, Poland und Rumania Customer: Babcock Noell GmbH Service: Calculation of decisive loads for the foundation design under consideration of earthquake loading
 Foto: Babcock Noell GmbH	**Environmental Engineering – Packed Bed Filter Modicer** New development of a flue gas purification plant in Portugal (height 25m) Customer: Babcock Noell GmbH Service: Structural design of a silo-like packed bed filter with attached stack acc. To EN standards
 Foto: Babcock Noell GmbH	**Environmental Engineering – Packed Bed Filter Keratec** New development of a flue gas purification plant (height 21m) Customer: Babcock Noell GmbH Service: Structural design of a stack attached to the filter acc. To DIN
 Foto: Babcock Noell GmbH	**Environmental Engineering – Packed Bed Filter Zeddam** New development of a flue gas purification plant in the Netherlands (height 17m) Customer: Babcock Noell GmbH Service: Structural design of the support structure of a silo-like packed bed filter with attached stack acc. To EN standards
	**Environmental Engineering – Evaporator** New development of a reactor incl. evaporator in the Netherlands (height approx. 8m to 18m) Customer: LTB Bayreuth Service: Structural calculation of the evaporator incl. reactor support structure acc. To EC3



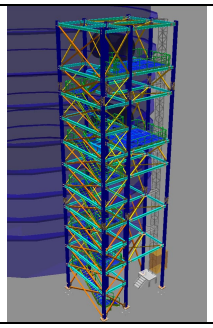
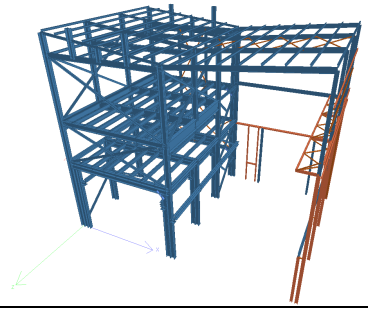
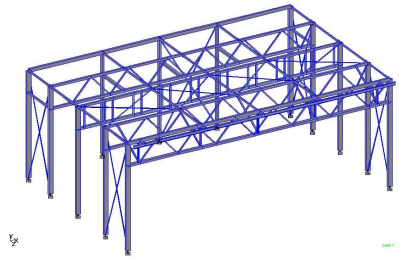
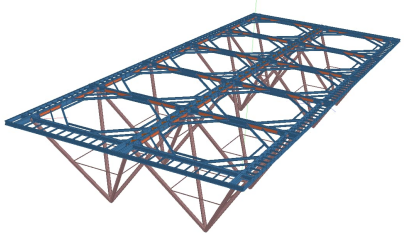
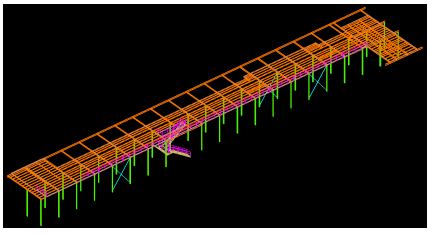
Environmental Engineering – Incineration Plant CyPlus Idesa

New development of an incineration plant (combustor, heat exchanger, gas purification) in Mexico

Customer:	Michaelis GmbH&Co. KG
Service:	Structural calculation and design of different parts of the plant incl. anchoring in the foundation acc. To AISC 360 LRFD under consideration of Mexican loading codes

Plant Engineering – Structural Steelwork

Stair Towers, Halls, Platforms

	**Plant Engineering – Petrochemical Plant in Ras Tanura** New development of a stair tower with elevator in Saudi Arabia (measurements approx. 10m x 8m x 33m) Customer: Babcock Noell GmbH Service: Structural calculation and connection design acc. To AISC 360-05 LRFD incl. design and workshop drawings
	**Plant Engineering – Foundry Rexroth** Survey of an existent steel hall with intermediate levels (measurements approx. 14m x 20m x 17m) Customer: Ingenieurbüro Ruf Service: Structural calculation and check of the existent steel structure acc. To DIN 18800
	**Plant Engineering – Wood Dryer Eisenmann** Optimisation of the support structure for wood dryer. Variable basic structure (width 5m to 18m) Customer: Eisenmann SE Service: Compilation of a variable 3D basic structure for quick preliminary structural calculations for bid proposal management. Design acc. To DIN18800
	**Plant Engineering – Platform Sluiskil** New development of a platform for air condensers (measurements 62m x 26m x 10m) in the Netherlands Customer: ICW GmbH/GEA Anlagentechnik Service: Structural calculation of the steel platform with earthquake loading acc. To EC3
	**Plant Engineering – Painting Plant Ford Thailand** New development of 3800 m² of operating platforms and installation girders for a painting plant in Thailand Customer: Dürr Systems GmbH Service: Structural calculation and basic design drawings of the stilted and hanging steel structure acc. To EC3

MF Engineering GmbH & Co. KG * Birkachstr. 42 * D-97276 Margetshöchheim
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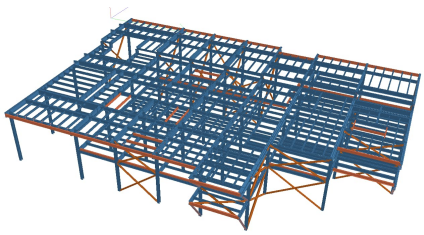
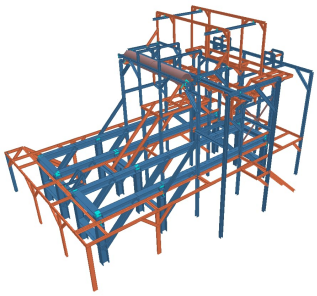
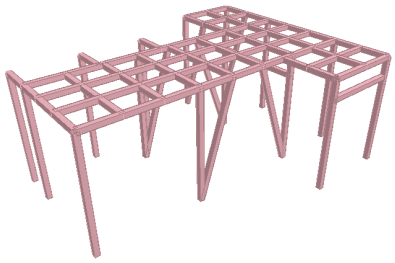
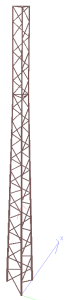
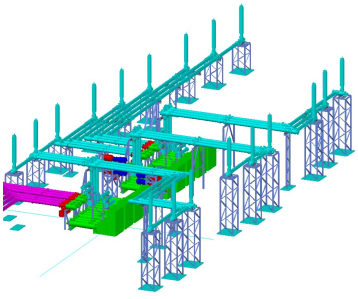
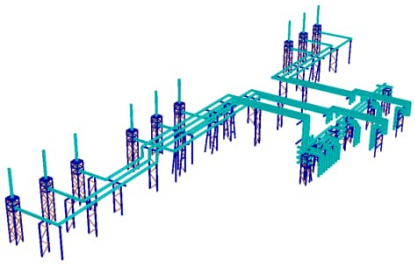
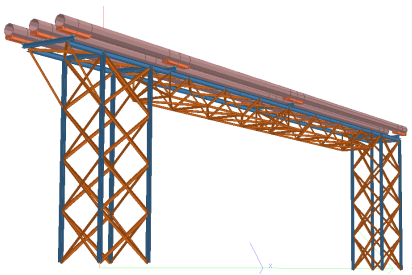
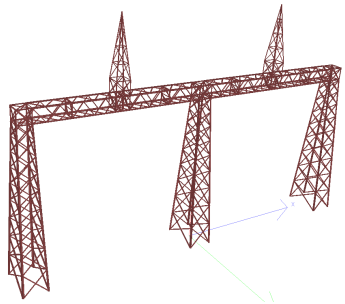
Email: info@MF-Engineering.de * Web: http://www.MF-Engineering.de

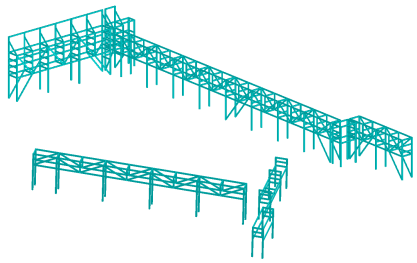
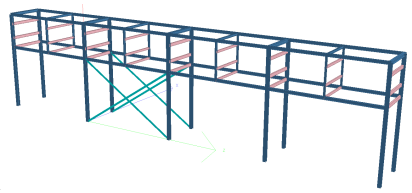
	**Plant Engineering – Aluminium Plant Saudi Arabien** New development of a platform structure with three levels for the installation of the conveyance of an Aluminium plant in Saudi Arabia (measurements approx. 7.5m x 25m x 37.5m) Customer: NKM Noell Special Cranes Service: Structural and seismic calculation and connection design acc. To EC3 as well as workshop drawings
	**Plant Engineering – Recycling Plant, USA** New development of a recycling plant with dryer, spiral conveyors and small cranes Customer: URT Umwelt- und Recyclingtechnik GmbH Service: Structural calculation and proof of the steel structure incl. anchoring acc. To ASCE 7-16, DIN EN 1993-1 and DIN EN 1992-4
	**Plant Engineering – Platform in Brewery** New development and assembly of a platform for filtration in Bacolod, Philippines Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the platform under seismic load acc. To NSCP-2015 / UBC 1997

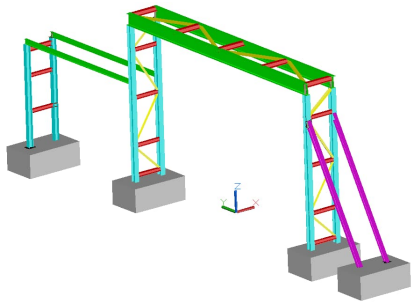
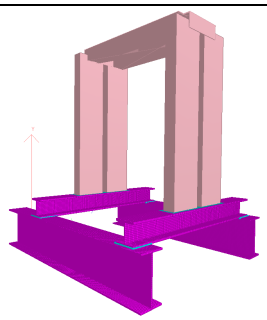
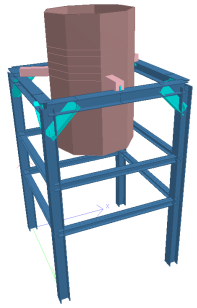
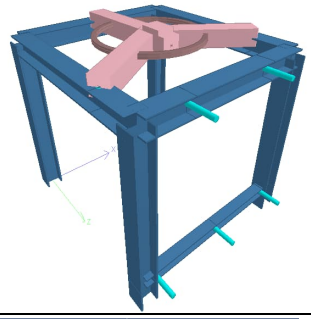
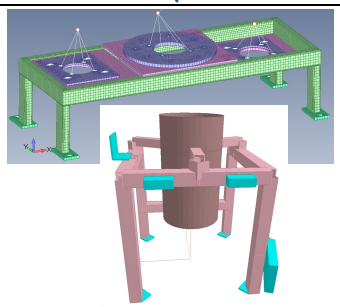
Telecommunication and Electrical Switching Stations

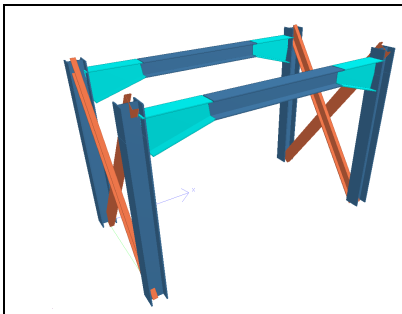
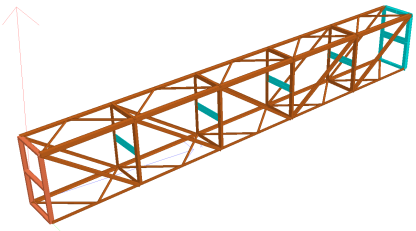
	**Plant Engineering – Telecommunication Tower** New development of a 30m and a 45m telecommunication tower in Denmark Customer: Ramboll (Denmark) Service: Participation with the structural calculation of the telecommunication towers acc. To EC3
	**Plant Engineering – Gas Insulated Switchgear El Harrach** New development of 28 steel support structures for a gas insulated switchgear in Algeria (height: approx. 2-5m) Customer: ABB Schweiz AG Service: Structural calculation and design drawings of the steel support structures acc. To AISC ASD and structural check of the gas filled Aluminium pipes (with earthquake loading)

	**Plant Engineering – Gas Insulated Switchgears** Study about the difference of methods to perform a seismic analysis – quasi-static versus response spectrum method Customer: ABB Schweiz AG Service: Calculation of several das insulated switchgears (quasi-static and response spectrum method) and statistic evaluation of the calculation results in regards to the economic efficiency of the structures
	**Plant Engineering – Gas Insulated Switchgear Riyadh** New development of 85 steel support structures and pipeline bridges for a gas insulated switchgear in Saudi Arabia (height: approx. 4-11m) Customer: Siemens AG Service: Structural calculation of the pipeline bridges and steel support structures acc. To AISC ASD and design drawing of the pipeline bridges
	**Plant Engineering – 380kV Gantry Portal** New development of a steel gantry portal for a gas insulated switchgear in Saudi Arabia (height approx. 35.5m, length approx. 55.5m) Customer: Siemens AG Service: Structural calculation/optimisation of the gantry portal acc. To ASCE-97

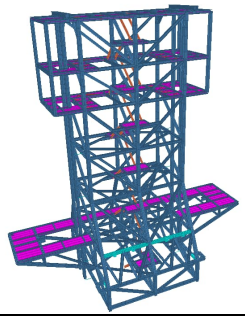
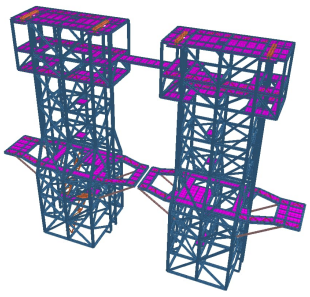
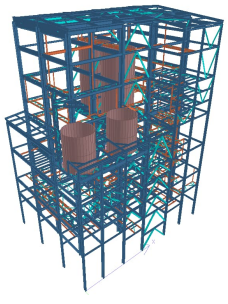
Pipe Bridges and Support Structures

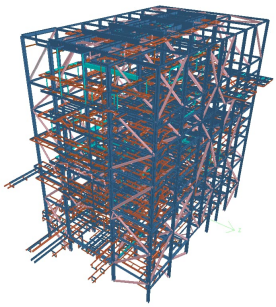
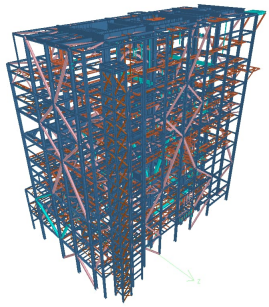
	**Plant Engineering – Pipe Bridge Heineken Taiwan** New development of a pipe bridge for pipe and cable supports in a brewery in Taiwan Customer: Steinecker GmbH Service: Determination of foundation loads for the pipe bridges under wind and earthquake load
	**Plant Engineering – Pipe Bridge Zona Mariel, Cuba** New development of a pipe bridge for pipe and cable supports in a brewery in Zona Mariel, Cuba Customer: GEA Brewery Systems GmbH Service: Structural calculation and optimisation of the pipe bridge incl. Detailing acc. To EC3 under wind (NC 285:2003) and seismic load (NC 46:2017)

	**Plant Engineering – Biomethane Plant Kroppenstedt** New development of a pipeline bridge for pipe supports of thermal oil lines Customer: Lisega SE Service: Structural calculation/optimisation and connection design acc. To EC3
	**Plant Engineering – Pipe Supports in Steam Power Plant** New development of pipe support structures in the steam power plant Karlsruhe, unit 8 Customer: Lisega SE Service: Proof of the local load transfer acc. To DIN18800 with finite element analyses (FEA)
	**Plant Engineering – Support Structure for a Jet Mill** Erection of a jet mill in Clinton, USA Customer: NETZSCH Trockenmahltechnik GmbH Service: Structural calculation and design of a steel frame structure for a jet mill under earthquake loading acc. To ASCE 7-05, IBC 2009, AISC 360-05
	**Plant Engineering – Support Structure for a Jet Mill** Erection of a jet mill in Chester, USA Customer: NETZSCH Trockenmahltechnik GmbH Service: Structural calculation and design of a steel frame structure for a jet mill under earthquake loading acc. to IBC 2012, AISC 360-10
	**Plant Engineering – Support Structure for a Jet Mill and a Classifier Mill** Erection of a jet mill and classifier mill in Loyalist, Canada Customer: NETZSCH Trockenmahltechnik GmbH Service: Structural calculation and design of steel frame structures for the two mills under earthquake loading acc. to NBCC 2015, CSA S16:19

	**Plant Engineering – Support Structure for Cross-flow Chipper** Erection of a cross-flow chipper Customer: Xproducts Deutschland GmbH Service: Structural calculation and design of a steel frame structure for the cross-flow chipper under consideration of dynamic load impact acc. To DIN EN 1993-1
	**Plant Engineering – Support Structure for Conveyor Belt** New development of a conveyor belt in Kentucky, USA Customer: BEUMER Group Austria GmbH Service: Structural calculation and design of lattice work structure loaded with conveyed material, wind, snow, ice and earthquake acc. To ASCE 7, AISC 360 ASD

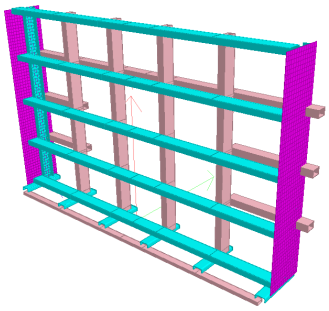
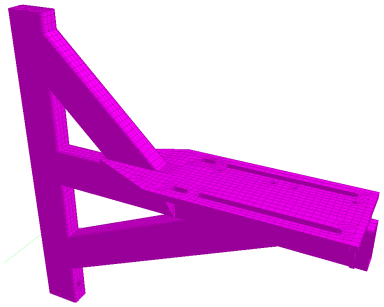
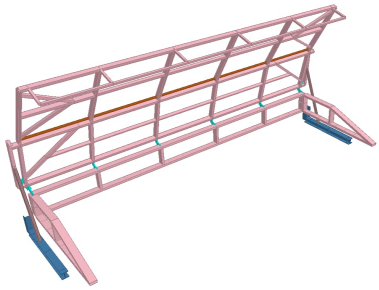
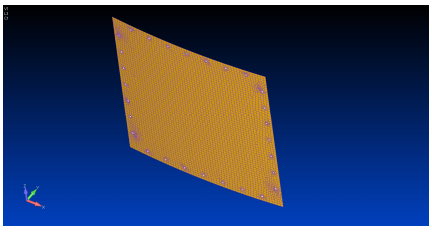
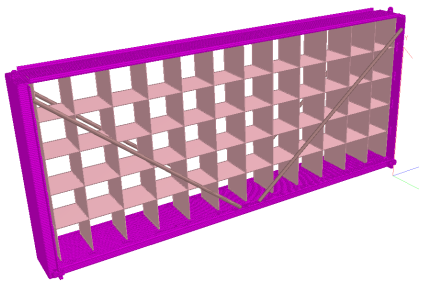
Conversion to STAAD.Pro

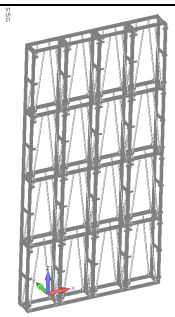
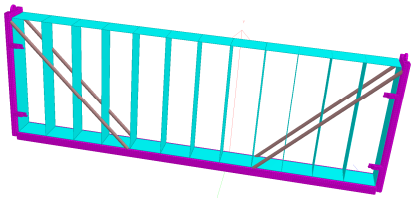
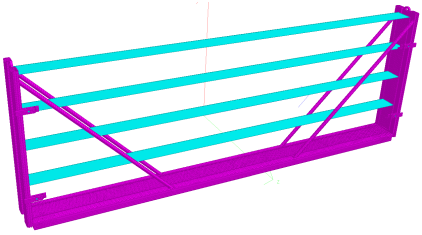
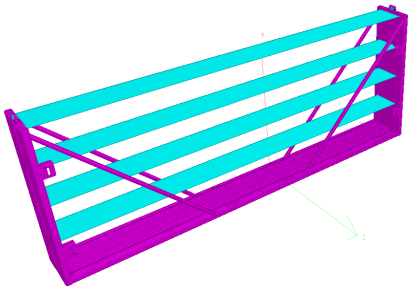
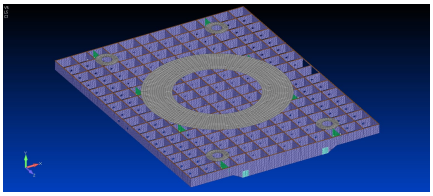
	**Plant Engineering – Decoking Plant in Mostorod** New development of a tower for a decoking plant in Egypt Customer: MS Müller & Schmoranzer / Ruhrpumpen GmbH Service: Compilation of a finite element (FE) model in STAAD.Pro (conversion from Antras) and technical advice for calculation and design of the tower acc. To ASCE and AISC ASD
	**Plant Engineering – Decoking Plant** New development of a double tower (height 38 m) on top of a support structure (height 60 m) for a decoking plant in Kuwait Customer: MS Müller & Schmoranzer / Ruhrpumpen GmbH Service: Compilation of a finite element (FE) model in STAAD.Pro (conversion from Antras) and technical advice for calculation and design of the tower acc. To ASCE and AISC ASD
	**Plant Engineering – Steel Structure** New development of a steel structure Customer: Andritz AG Service: Creation of a FEA model in STAAD.Pro (conversion from SCIA)

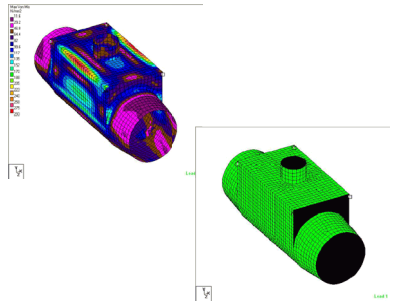
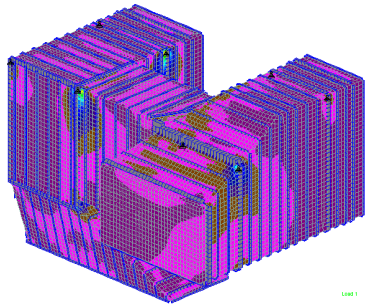
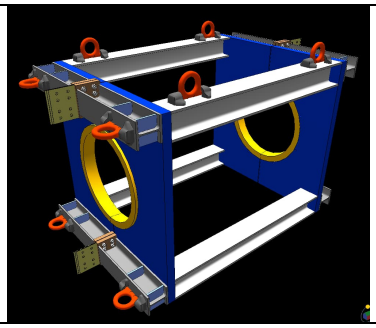
	**Plant Engineering – Steel Structure in Ichihara** New development of a steel structure Customer: Andritz AG Service: Creation of a FEA model in STAAD.Pro (conversion from SCIA)
	**Plant Engineering – Steel Structure in Tokushima** New development of a steel structure consisting of several separate buildings Customer: Andritz AG Service: Creation of a FEA model in STAAD.Pro (conversion from SCIA)

Plant Engineering – Mechanical Engineering

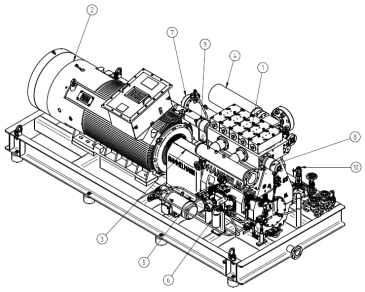
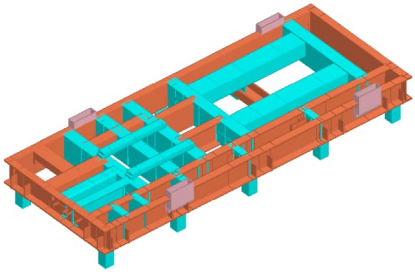
Components for Biogas and Power Plants

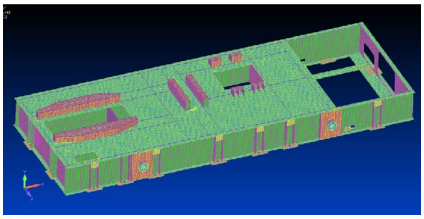
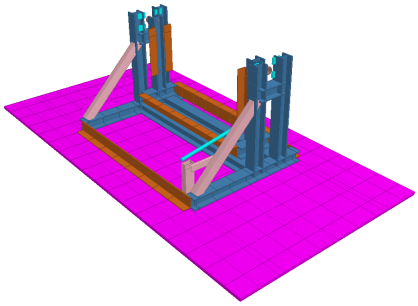
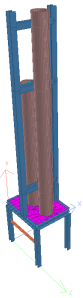
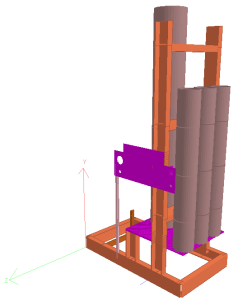
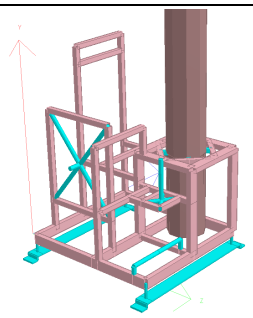
	**Plant Engineering – Biogas Substrate Barrier** New development of a substrate barrier for containment of the dry substrate. Measurements approx. 2.5 m x 4.0 m Customer: Schmack Biogas GmbH Service: Structural calculation of the substrate barrier acc. To EC3
	**Plant Engineering – Biogas Pump Brackets** Proof of brackets for installation of an eccentric spiral pump at the concrete wall of a fermenter Customer: Schmack Biogas GmbH Service: Structural calculation/optimisation of the brackets in regards to carrying capacity and fatigue under consideration of the dynamic load acc. To DIN EN 1993 and VDI 2230
	**Plant Engineering – Biogas Substrate Bunker** New development of a hydraulic to open cover made of stainless steel for a substrate bunker. Measurements approx. 11.5m x 4.0 m x 1.6m Customer: Schmack Biogas GmbH Service: Structural calculation of the cover in several opening positions acc. To EC3
	**Plant Engineering – Fermenter Cover Plate** New development of a cover plate loaded by 800 mbar overpressure Customer: Schmack Biogas GmbH Service: Structural calculation of the cover plate acc. To EC3 and anchoring in concrete acc. To ETAG
	**Plant Engineering – Catalyst for Gas Power Plants** New development of a catalyst module for gas power plants Customer: Johnson Matthey Catalysts (Germany) GmbH Service: Structural calculation and design of a steel frame structure for catalysts under earthquake loading acc. To ASCE 7-05, IBC 2009, AISC 360-10

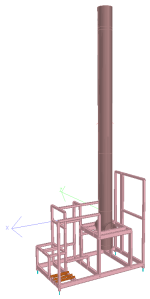
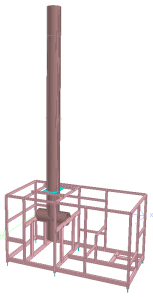
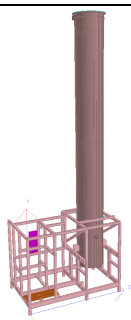
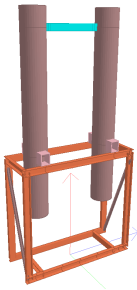
	**Plant Engineering – Catalyst for Gas Power Plants** New development of a catalyst module for gas power plants Customer: Johnson Matthey Catalysts (Germany) GmbH Service: Structural calculation and design of a structure consisting of several modules made of welded steel plates under earthquake loading acc. To DIN EN1998 and DIN EN 1993, analyses for different materials (structural steel, boiler steel, stainless steel)
	**Plant Engineering – Catalyst for Gas Power Plant TVA Paradise** Enhancement of an existing Catalyst module for a new gas power plant Customer: Johnson Matthey Catalysts (Germany) GmbH Service: Structural calculation and design of a steel frame structure for catalysts under earthquake loading acc. To ASCE 7-05, IBC 2009, AISC 360-10
	**Plant Engineering – Catalyst for Gas Power Plant TVA Allen** Enhancement of an existing Catalyst module for a new gas power plant Customer: Johnson Matthey Catalysts (Germany) GmbH Service: Structural calculation and design of a steel frame structure for catalysts under earthquake loading acc. To ASCE 7-10, IBC 2012, AISC 360-10
	**Plant Engineering – Catalyst for Gas Power Plant Fuji MPP Moka** Enhancement of an existing Catalyst module for a new gas power plant in Japan Customer: Johnson Matthey Catalysts (Germany) GmbH Service: Structural calculation and design of a steel frame structure for catalysts under earthquake loading acc. To DIN EN 1993
	**Plant Engineering – Washing-bay for Wind Power Station** New development of a transport wagon for a washing-bay for parts of wind power stations Customer: Zippel GmbH Service: Structural calculation and design of the steel frame structure oft he transport wagon as well as pre-design of the runway girders acc. To DIN EN 1993-1 and DIN 1993-3

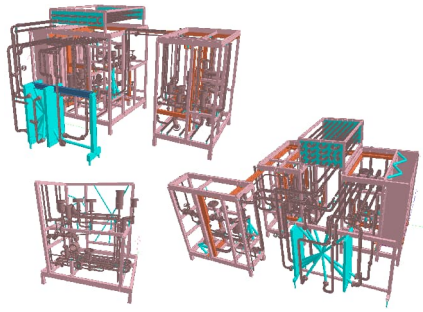
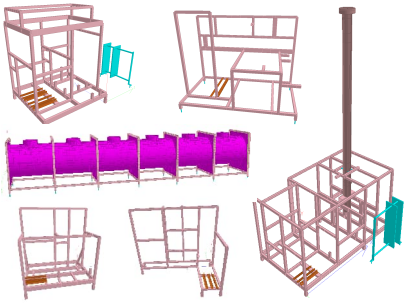
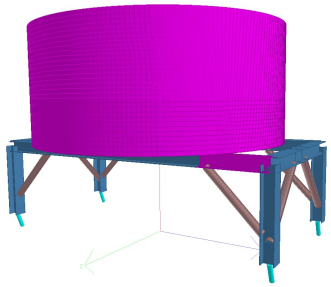
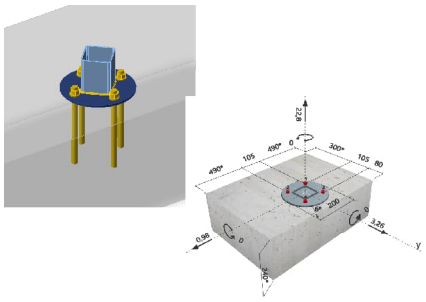
	**Plant Engineering – Alteration Power Plant Würzburg** Reorganisation of the former Würzburger coal power plant into a modern gas and steam power plant Customer: W + G Ingenieurgesellschaft mbH Service: Structural calculation and check of a flue gas duct with overpressure
	**Plant Engineering – Moneypoint Generating Station** Alteration of a power plant (915 MW) in Ireland Customer: W + G Ingenieurgesellschaft mbH / Lurgi Lentjes Service: Structural calculation and check of a flue gas duct
	**Plant Engineering – Maasvlakte Power Plant 3** New development of two assembly frames for transport, assembly and revision of large valves Customer: Lisega SE / E.ON Kraftwerke AG Service: Structural calculation acc. To DIN 18800 and workshop drawings of the assembly frames

Support Frames and Racks

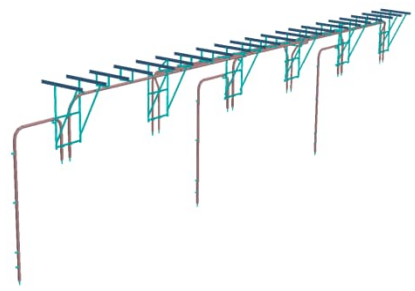
 Bild: Hammelmann GmbH	**Plant Engineering – High Performance Pumps for Offshore Use** New development of two frame structures for transport, assembly and operation of high-performance pumps at high seas and on oil production vessels Customer: Hammelmann GmbH / MODEC & TOYO Offshore Production Service: Structural calculation and connection design acc. to AISC 360, ASCE 7-05
	**Plant Engineering – High Performance Pumps for Modec Uaru** New development of frame for transport, assembly and operation of a high-performance pump for Modec Uaru, Guyana Customer: Hammelmann GmbH Service: Structural calculation and connection design acc. to AISC 360, ASCE 7

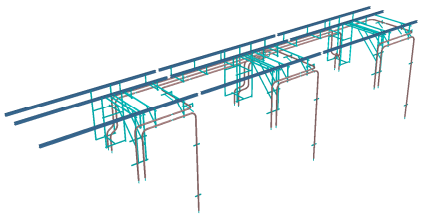
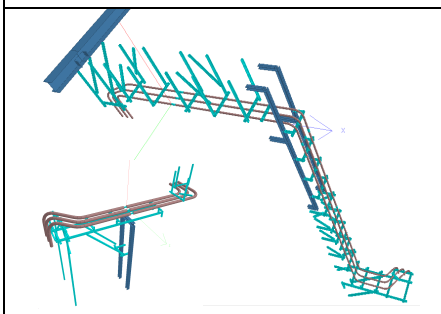
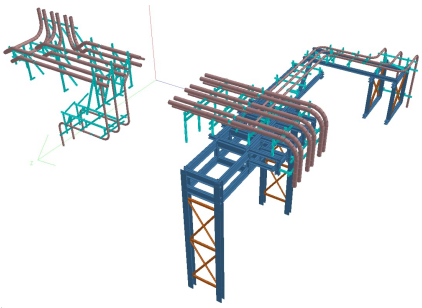
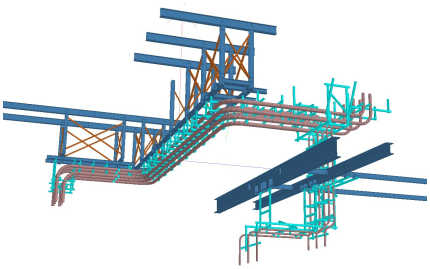
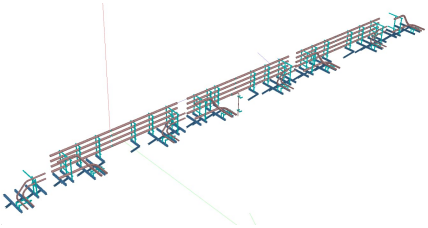
	**Plant Engineering – TCO Steel Frames** New development of five machine frame structures for operation and during sea transport from Korea to Kazakhstan Customer: Siemens AG, Dresser-Rand Business Technology Service: Structural calculation and design of steel frames acc. To ASCE 7-05 and AISC 360
	**Plant Engineering – Steel Frames for Lubrication System** New development of a lubrication system on the boom of an offshore crane Customer: Baier + Köppel GmbH + Co. KG Service: Structural calculation and design of a steel frame loaded by ship movement and boom tilt acc. To offshore guideline DNVGL-ST-0378 and DIN EN 13001
	**Plant Engineering – Steel Frame for Accumulator Unit, Oman** New development of an accumulator unit in Oman Customer: HYDAC Technology GmbH Service: Structural calculation and design of a steel frame anchored in the foundation under wind load acc. To ASCE 7-05, AISC 360-10 and ETAG
	**Plant Engineering – Steel Frame for Accumulator Unit, USA** New development of an accumulator unit in Brandenburg, USA Customer: HYDAC Technology GmbH Service: Structural calculation and design of a steel frame anchored in the foundation under earthquake loading acc. To ASCE 7-10 and AISC 360-16
	**Plant Engineering – Steel Frames for Varidox-H** New development and erection of a Varidox-H in Korea Customer: GEA Diessel GmbH / GEA TDS GmbH Service: Structural calculation and design of a steel frame anchored in the foundation under earthquake loading acc. To UBC 1997, EN 1993-1 and ETAG

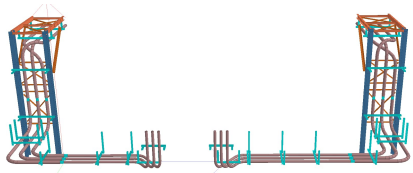
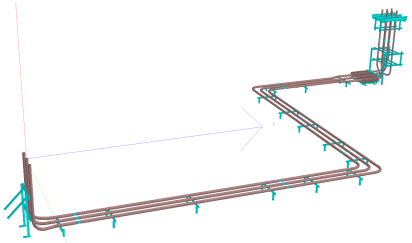
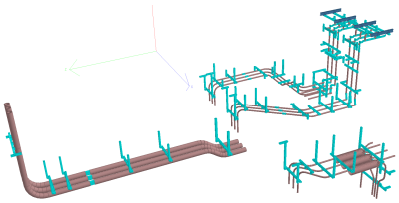
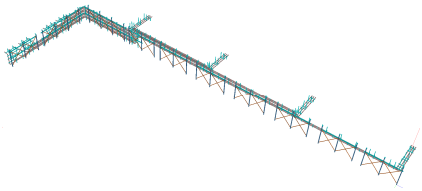
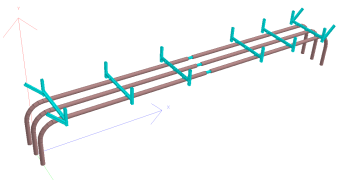
	**Plant Engineering – Rack for Column in Brewery** New development and erection of a rack with column in Budapest Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a rack as well as the brackets of the column under earthquake loading acc. To EN 1998-1
	**Plant Engineering – Rack for Column in Brewery** New development and erection of a rack with column in Phoenix, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a rack as well as the brackets of the column under earthquake loading acc. To ASCE 7 and IBC 2012
	**Plant Engineering – Rack for Column in Brewery** New development and erection of a rack with column in Barranquilla, Columbia Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a rack as well as the brackets of the column under earthquake loading
	**Plant Engineering – Skid for CO_2-Dryer/Purifier in USA** New development and erection of skids with dryer DN800 and purifier DN700 in Golden, Colorado, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation, design and optimisation of skids under earthquake loading acc. to ASCE 7-22
	**Plant Engineering – Skid for CO_2-Dryer/Purifier in USA** New development and erection of skid with dryer and purifier DN350 in Fort Collins, Colorado, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a skid acc. to AISC 360 under earthquake and wind loading acc. to ASCE 7-22 as well as anchorage acc. to ACI 318

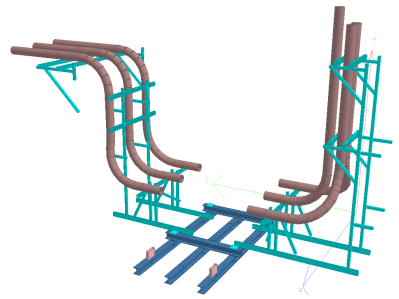
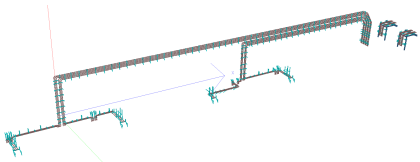
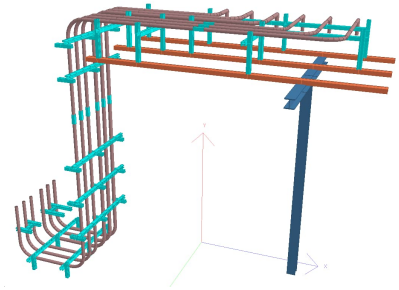
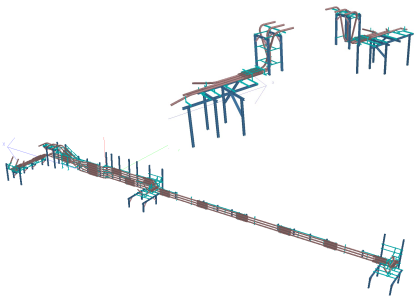
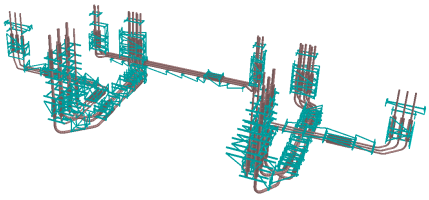
	**Plant Engineering – Several Racks for Brewery** New development and erection of racks for piping and heat exchangers, etc. in Escondido, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of racks under earthquake loading acc. to ASCE 7-22 and AISC 360-16
	**Plant Engineering – Several Racks for Brewery** New development and erection of racks for piping and heat exchangers, etc. in Gornji, Slovenia Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of racks under earthquake loading acc. to EN 1998-1 and EN 1993-1
	**Plant Engineering – Transport Rack for Brewery Vessel** New development of a transport rack for a cereal cooker in a brewery in Santo Domingo Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a transport rack acc. To DIN EN 1993-1
	**Plant Engineering – Anchorages for Racks and Tanks** New development of racks and tanks for a brewery in Montreal, Canada Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of subsequent anchorages for racks and tanks under seismic loading acc. To CSA A23.3-14

Electrical Facilities

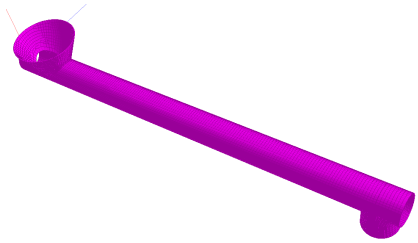
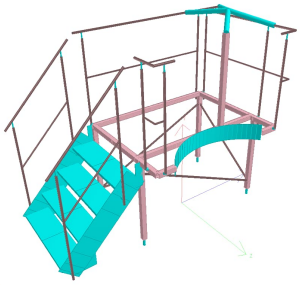
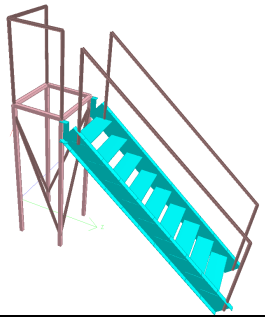
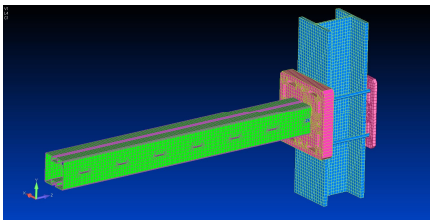
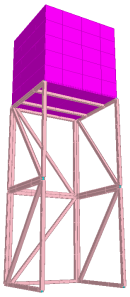
	**Plant Engineering – Transformers 380/220KV Lavorgo** New development of 3 transformers 380/220KV incl. resin jacketed bus bars in Switzerland Customer: MGC Moser-Glaser AG Service: Seismic calculation (response spectrum method) of the fastening structures and the resin jacketed busbars acc. To IEC 62271-207

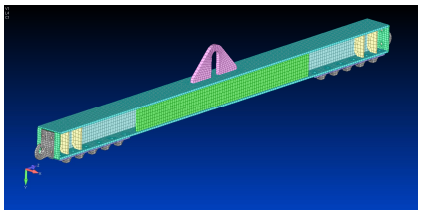
	**Plant Engineering – Transformers 380/220kV UW Châtelard** New development of transformers 380/220KV incl. resin jacketed bus bars in Switzerland Customer: MGC Moser-Glaser AG Service: Seismic calculation (response spectrum method) of the fastening structures and the resin jacketed busbars acc. To IEC 62271-207
	**Plant Engineering – Transformers 12kV Formosa** New development of transformers 12kV/1250A & 12kV/3150A incl. resin jacketed bus bars in Taiwan Customer: MGC Moser-Glaser AG Service: Seismic calculation (quasi-static) of the fastening structures and the resin jacketed busbars
	**Plant Engineering – Transformers 24kV Full Power Energy** New development of transformers 24kV / 2000 A / 2x4000 A incl. resin jacketed bus bars in Taiwan Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading
	**Plant Engineering – Transformers 17,5kV Formosa Refinery** New development of transformers 17.5kV / 2x2000 A / 2x4000 A incl. resin jacketed bus bars in Taiwan Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading
	**Plant Engineering – Transformers 36kV Siemens** New development of transformers 36kV / 5000 A incl. resin jacketed bus bars in Laufenburg, Switzerland Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading

	**Plant Engineering – Transformers 36kV** New development of transformers 36kV / 2500 A incl. resin jacketed bus bars in Oman Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To IBC 2009 and ASCE 7-05
	**Plant Engineering – Transformers 36kV** New development of transformers 36kV / 2000 A / 4000 A incl. resin jacketed bus bars in Peru Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading
	**Plant Engineering – Transformers 17,5kV** New development of transformers 17,5kV / 1250 A / 4500 A incl. resin jacketed bus bars in Wägital, Schweiz Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading
	**Plant Engineering – Transformers 24kV** New development of transformers 24kV / 2500 A incl. resin jacketed bus bars in Gaston, USA Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To ASCE 7-16
	**Plant Engineering – Transformers 36kV** New development of transformers 36kV / 2000 A incl. resin jacketed bus bars in Belle Chasse, USA Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To ASCE 7-16

	**Plant Engineering – Transformers 17,5kV** New development of transformers 17,5kV / 6300 A incl. resin jacketed bus bars in La Bâtiaz, Schweiz Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To ESTI 248, version 0415 d
	**Plant Engineering – Transformers 17,5kV** New development of transformers 17,5kV / 2000 A incl. resin jacketed bus bars at Robert Kerr Dam, USA Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To ASCE 7-16 incl. anchorages acc. To ACI 318-14
	**Plant Engineering – Transformers 17,5kV** New development of transformers 17,5kV / 1250 A, 1600 A incl. resin jacketed bus bars in Leibstadt, Schweiz Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To KTA 2201.4 as well as GKSL-Nr. L1000
	**Plant Engineering – Transformers 123kV** New development of transformers 123kV / 3150 A incl. resin jacketed bus bars in Boston, USA Customer: MGC Moser-Glaser AG Service: Structural calculation and design of the fastening structures and the resin jacketed busbars under seismic loading acc. To ASCE 7-16
	**Plant Engineering – Inch Cape Offshore Wind Farm in GB** New development of Moray West Offshore Wind Farm, North Sea, GB Customer: MGC Moser-Glaser AG Service: Structural calculation and optimisation of the fastening structures as well as determination of support loads for wind, ice and offshore loading

Miscellaneous

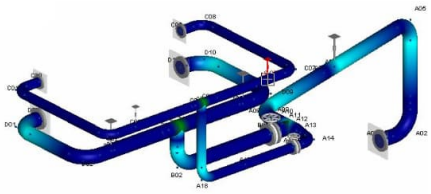
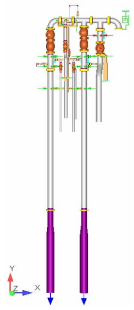
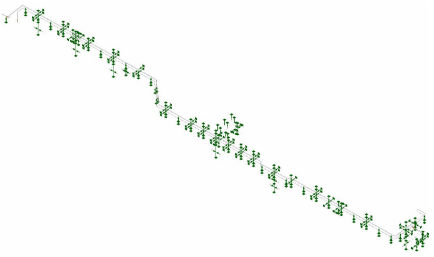
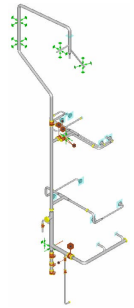
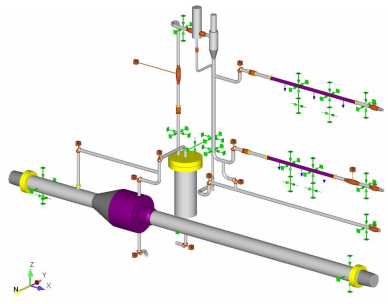
	**Plant Engineering – Dust Explosion in Spiral Conveyors** New development of spiral conveyors for VetterTec Customer: Ilchmann Fördertechnik GmbH Service: Analysis of enclosures for spiral conveyors in regards to blast pressure incl. determination of section forces at the flanges
	**Plant Engineering – Platform for Brewery** New development and erection of a platform Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a platform with roller conveyor
	**Plant Engineering – Platform in Brewery** New development and erection of a platform in Chungju, South Korea Customer: GEA Brewery Systems GmbH Service: Structural calculation and design of a platform under seismic load acc. To UBC 1997 und EC3
	**Plant Engineering – Suspended Structure with Special Profiles** New development of a plant in Linde, Texas Customer: MÜPRO Services GmbH Service: Structural calculation and design of special profiles to be clamped to the main steel structure under single loads and wind acc. To ASCE 7-10 and AISC 360-10
	**Plant Engineering – Emergency Shower** New development of an emergency shower for facilities with hazardous substances Customer: Haws AG Service: Structural calculation and design of the load carrying frame of an outdoor emergency shower acc. To AISC 360-16 as well as anchorage acc. To ETAG

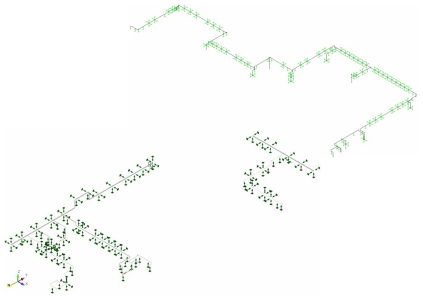
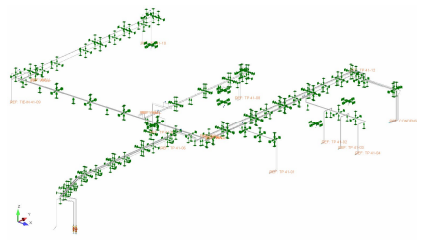
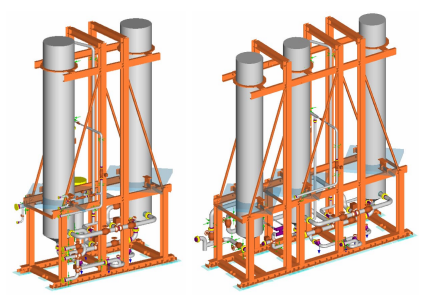
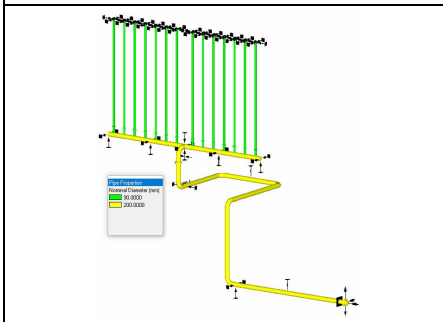


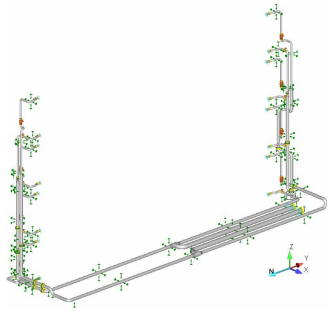
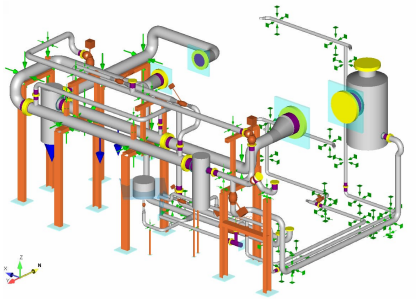
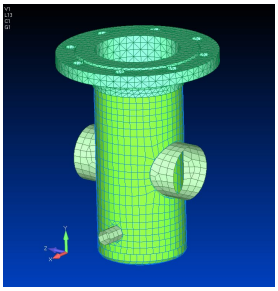
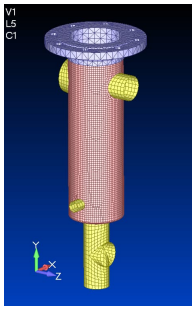
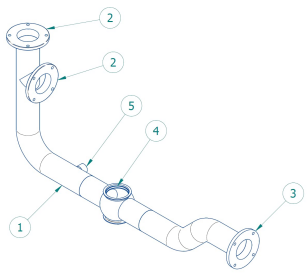
Plant Engineering – Lifting Beam
Check of an existing lifting beam for lifting of pressure vessels

Customer: Danz GmbH
Service: Structural calculation and check of the lifting beam acc. To DIN EN 13155

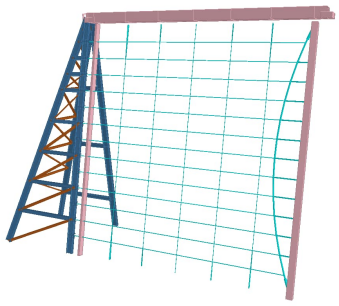
Plant Engineering – Pipeline Construction

	**Pipeline Construction – PET Plant Brazil** Calculation of 70 pipeline systems (200 isometric views) (operating temperature of 50 – 350°C, pressure 0 – 4 bar) Customer: Bühler AG, Schweiz Service: Calculation of pressure, weight and temperature loads. Check of pipe stress acc. To ASME B31.3 as well as the loads at the nozzle. Determination of the required pipe supports and variable spring hangers
	**Pipeline Construction – Fire Main in Nuclear Power Plant Grohnde** Calculation of a fire main incl. support under loading of airplane crash and under maintenance Customer: PreussenElektra GmbH Service: Structural calculation and design of the support acc. To DIN EN 1993 and of the pipe acc. To DIN EN 13480 based on response spectra for the building
	**Pipeline Construction – Plant in Tadcaster, UK** Calculation of a steam pipe with condensate return (operation temperature 180°C, pressure 10 bar) Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipe under pressure, self-weight and temperature load acc. To DIN EN 13480
	**Pipeline Construction – Brewery in Toronto, Canada** Calculation of a pipe for a Millstar 10 t pump (operation temperature 85°C, pressure 10 bar) Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipe under pressure, self-weight, temperature and seismic load acc. To ASME B31.3
	**Pipeline Construction – Brewery in Chilliwack, Canada** Calculation of a pipe for wort aeration (operation temperature 150°C, pressure 7 bar) Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipe under pressure, self-weight, temperature, wind and seismic load acc. To ASME B31.3

	**Pipeline Construction – Brewery in Montreal, Canada** Calculation of a steam and a condensate pipe line (operating temperature of 180°C, pressure 10 bar) Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipe under pressure, dead load and temperature as well as earthquake acc. To ASME B31.3 und NBCC 2010
	**Pipeline Construction – Brewery in Chadyschensk, Russia** Calculation of steam and condensate pipe lines (operating temperature of 184°C, pressure 8 bar) Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipes under pressure, dead load and temperature as well as wind snow and earthquake acc. To EN 13480 Part 3 - 2017, RU SP 20.13330 and UBC 1997
	**Pipeline Construction – Brewery in Lublin, Poland** Calculation of a support structure with pipe lines for draff and malt (operating temperature of 75°C, pressure 2 bar, dynamic draff transport) Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipes and supports under pressure, dead load and temperature as well as wind and snow acc. To EN 1991-1 (NA)
	**Pipeline Construction – Piping for CO_2-Dryer/Purifier** New development and erection of dryer DN800 and purifier DN700 in Golden, Colorado, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipes acc. to ASME B31.3 under earthquake load acc. to ASCE 7-22
	**Pipeline Construction – Plant in Lincoln, USA** Calculation of an anti-icing system (operation temperature -20 to 500°C, pressure 25 bar) Customer: TB Freyer GmbH / Siemens Energy, Inc. Service: Structural calculation and proof of the pipe and flanges under pressure, self-weight, temperature, wind, snow and seismic load acc. To ASME B31.1

	**Pipeline Construction – Plant in Lincoln, USA** Calculation of heat exchange supply and drain piping (operation temperature -10 to 90°C, pressure 12 bar) Customer: TB Freyer GmbH / Siemens Energy, Inc. Service: Structural calculation and proof of the pipe and flanges under pressure, self-weight, temperature, wind, snow and seismic load acc. To ASME B31.1
	**Pipeline Construction – CO_2 Compressor Unit in USA** Calculation of pipe lines of a compressor unit incl. two cyclone separators in Glendale, Arizona, USA Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the pipes and cyclone separators under pressure, dead load and temperature as well as earthquake acc. To ASME B31.3
	**Pipeline Construction – Product Trap in Montreal, Canada** Calculation of a product trap integrated in a pipe system Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the product trap under pressure, weight and temperature loads as well as earthquake acc. To ASME B31.3
	**Pipeline Construction – Daeration Lantern in Montreal, Canada** Calculation of a daeration lantern integrated in a pipe system Customer: GEA Brewery Systems GmbH Service: Structural calculation and proof of the daeration lantern under pressure, weight and temperature loads as well as earthquake acc. To ASME B31.3
	**Pipeline Construction – Pipeline Components** Calculation of single pipeline components Customer: Krones AG Service: Structural calculation and proof of the pipeline components under pressure and temperature loads acc. To ASME B31.3

Glass Structures

	**Glass Structures – Visual Mock-Up** New development of a Visual Mock-Up for a pre-stressed glass facade (measurements approx. b=26m and h=20m) Customer: Gartner Steel and Glass GmbH Service: Structural calculation of the steel and cable structure as well as design of the steelwork acc. To BS EN 1993-1

Customer Index

ABB Schweiz AG
Andritz AG
Babcock Noell GmbH (heute Bilfinger Noell GmbH)
Baier + Köppel GmbH & Co. KG (BEKA)
BEUMER Group Austria GmbH
Bühler AG, Schweiz
Canberra GmbH
Danz GmbH
Deutsche Telekom AG
Dürr Systems GmbH
EWN Entsorgungswerk für Nuklearanlagen GmbH
Eisenmann
Fives-Cail Babcock
Gartner Steel and Glass GmbH
GEA Brewery Systems GmbH
GEA Diessel GmbH / GEA TDS GmbH
Hammelmann GmbH
Haws AG
HYDAC Technology GmbH
ICW GmbH
Ilchmann Fördertechnik GmbH
Ingenieurbüro Ruf
Johnson Matthey Catalysts (Germany) GmbH
Krones AG
Lisega SE
Luft- und Thermotechnik Bayreuth GmbH
MAX STREICHER GmbH & Co. KG
MGC Moser-Glaser AG
Michaelis GmbH&Co. KG
MS Müller & Schmoranzer / Ruhrpumpen GmbH
MÜPRO Services GmbH
NETZSCH Trockenmahltechnik GmbH
NKM Noell Special Cranes GmbH
PreussenElektra GmbH
Ramboll (Denmark)
RCE GmbH
RWE Power AG
Schmack Biogas GmbH
Siemens AG
Siloxa Engineering AG
Steinecker GmbH
TB Freyer GmbH
Uniper Nuclear Services GmbH (früher Uniper Anlagenservice GmbH bzw. E.ON Anlagenservice)
URT Umwelt- und Recyclingtechnik GmbH
W + G Ingenieurgesellschaft mbH
Xproducts Deutschland GmbH
Zippel GmbH

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