

Engineering by Independent Experts

*Towers and Industrial Chimneys
Refractories, Thermomechanics
Reinforced Concrete and Special Structures*



B+P

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Von der Ingenieurkammer-Bau NRW
öffentlich bestellter und vereidigter Sachverständiger
für Industrieschornsteine



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Managing Partners

Consulting Engineers, *Beratende Ingenieure* (IKBau NRW)

Construction Engineers, *Dipl.-Ing.* (TU Dortmund)

Publicly Certified and Sworn Expert for Industrial Chimneys (IKBau NRW)

Listed Structural Engineers (IKBau NRW)

Certified Expert for Concrete Maintenance (Zertifizierung Bau, IKBau NRW)

Listed Inspector for Superstructures (IKBau NRW)

Standards Committee DIN NA 005-11-37 AA (EN 13084) Industrial Chimneys

dgfs Committee „Thermomechanics Refractories“

dgfs Committee „Industrial Chimneys“

VBI Committee „Publicly Certified and Sworn Experts“

CICIND Committees „Concrete“, „Life Time Management“

IVS Guideline „Wall Thickness of Steel Chimneys“

Presenter at Symposia VGB, CICIND, ICCT, DGFS, IHK etc.

Teacher at Technical Academy Esslingen, TAE

Publications: Betonkalender, Beton- und Stahlbetonbau, Bauportal u.v.m.



Towers & Industrial Chimneys

Expert Opinion & Failure Analysis

Structural Engineering of New and Existing Historical Towers

Dynamics and Earthquake Engineering

Structural and Safety Status Examination

Strengthening and Repair Measures

Numerical Flow Calculation, CFD-Analysis

Change in Operation (Wet-Stack, Temperatures etc.)

Change in Load (Scaffolding, Antennas etc.)

Maintenance and Life Cycle Study

Demolition Engineering

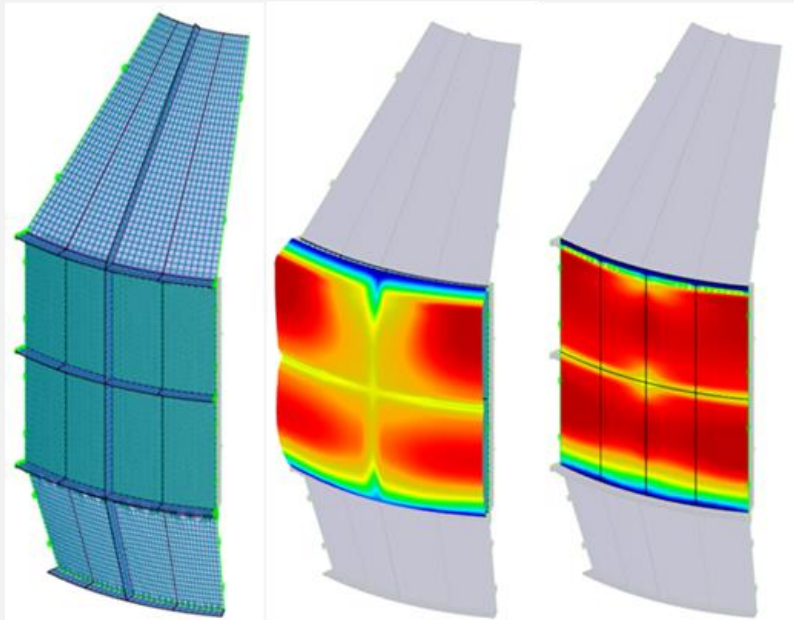
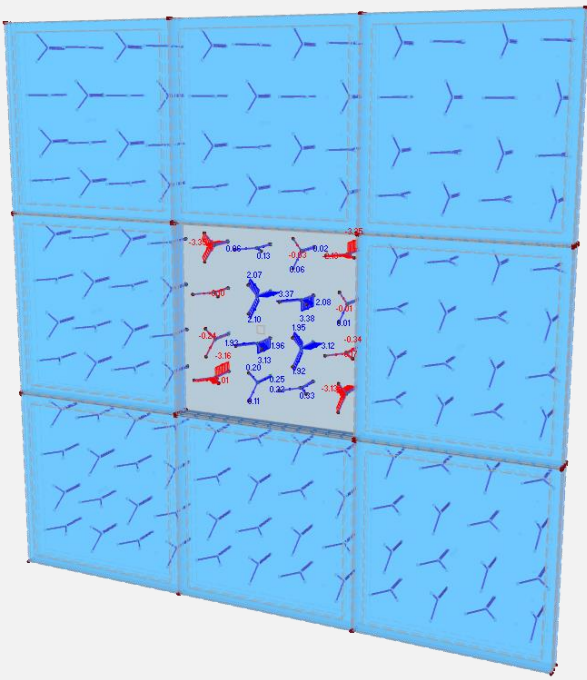


Projects *TOWERS & INDUSTRIAL CHIMNEYS*

(w/out regular site Inspections)

Excerpt by 07.2020

PNr	Building	Owner	Task
90002	CONCRETE DIGESTERS, 2x 8000m ³	CITY of Hannover	Structural Engineering
90003	CONCRETE CHIMNEY, Lengerich	DYCKERHOFF	Strengthening
90011	BRICK CHIMNEY, Rasselstein	THYSSENKRUPP	Expert Opinion, Demolition Eng.
90025	BRICK CHIMNEY, Uerdingen	LANXESS	Surveying
90032	BRICK CHIMNEY, Ludwigshafen	RASCHIG	Expert Opinion
90036	BRICK CHIMNEY, Fortuna	RWE	Thermodynamics
90038	CONCRETE CHIMNEY, Schkopau	UNIPER	Expert Opinion, Repair Eng.
90042	BRICK CHIMNEY, Hamburg	AURUBIS	Bearing Capacity
90044	CONCRETE CHIMNEY, RDK	EnBW	Drone Inspection
90046	STEEL CHIMNEY, Scholven	BP	Bearing Capacity
90047	CONCRETE CHIMNEY, Altchemnitz	EINS	Bearing Capacity; Demolition Eng.
90056	CONCRETE CHIMNEY, Niederaußem	RWE	Detail Engineering
90059	HIST. BRICK CHIMNEY, Essen	ZOLLVEREIN	Site Supervision
90067	CONCRETE CHIMNEY, Ratingen	VODAFONE	Expert Opinion
90070	HIST. BRICK CHIMNEY, Duisburg	PARK DKH	Maintenance Engineering
90075	HIST. BRICK CHIMNEY	CITY of Tübingen	Strengthening
90081	STEEL CHIMNEY, Fortuna	RWE	Reconstruction
90082	BRICK CHIMNEY, Wuppertal	JOCKEL	Expert Opinion
90086	STEEL CHIMNEYS, Oberhausen	EnergieVO	Expert Opinion
90094	BRICK CHIMNEY, Louisenthal	BPS	Bearing Capacity
90097	HIST. BRICK CHIMNEY	CITY of Bonn	Strengthening
90107	BRICK CHIMNEY, St. Egidien	KNAUF	Thermodynamics
90108	STEEL CHIMNEYS, Freital	BGH	Thermodynamics
90119	STEEL CHIMNEY, Essen	TRIMET	Dynamic Bearing Capacity
90120	STEEL CHIMNEY, Munich	DANPOWER	Thermodynamics
90121	BRICK CHIMNEY, Weisweiler	RWE	Demolition Eng.
90124	CONCRETE CHIMNEY, Staudinger	UNIPER	Expert Opinion



Refractories, Thermomechanics

Expert Opinion & Failure Analysis

Design Optimization (layer thicknesses, joints, anchors etc.)

Integral Thermomechanical FE-Systemanalysis

Stiffness Oriented Calculation Methods

Stationary and Transient Temperatures and Stresses

Close-To-Reality Stress Calculation

Parametric Studies of Overall Behavior

3D-Temperature Distribution

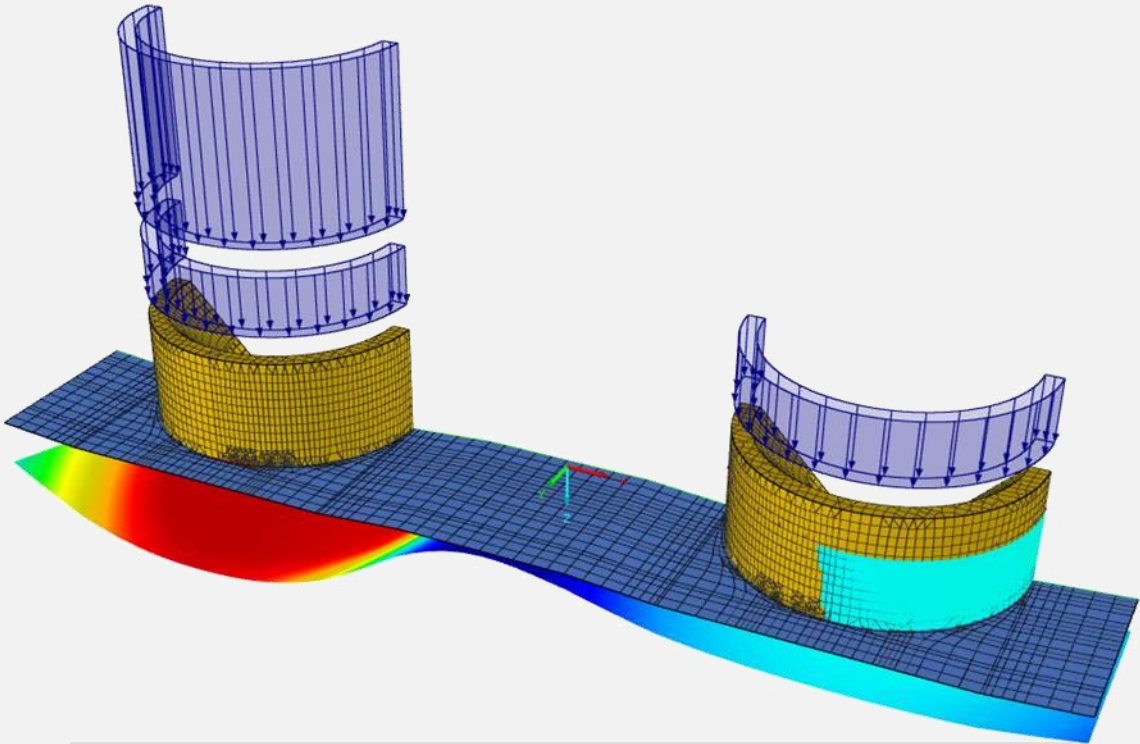
Numerical Flow Calculation, CFD-Analysis

Analysis of Operational Data

Projects REFRACTORIES, THERMOMECHANICS

Excerpt by 07.2020

PNr	Building	Owner	Task
(detailed description of unit and name of owner are sensitive data)			
90006	FURNACE, Lining Cracks		Temperature Comparison, FEA
90013	WALKING BEAM FURNACE, Beams		Bearing Capacity Comparison, FEA
90028	COMBUSTION CHAMBER, Anchors		Court Report
90031	FLUIDIZED BED FURNACE, Steel Mantle		Residual Bearing Capacity, FEA
90037	COMBUSTION CHAMBER LINING, Anchors		Bearing Capacity Comparison, FEA
90039	RECUPERATOR, Inner Steel Cylinder		Buckling Failure Analysis, FEA
90041	MULTI-LAYER CHAMBER FURNACE, Heating Elements		Failure Analysis, FEA
90065	SECONDARY COMBUSTION CHAMBER, Wear Layer		Deformation Failure Analysis, FEA
90066	PUSHER PLATE FURNACE, Jack Arch		Bearing Capacity Comparison, FEA
90071	ALUMINIUM MELTING FURNACE, Steel Shell		Deformation Analysis, FEA
90085	GRINDING WHEEL		Rupture Failure Analysis, FEA
90095	REFORMER, Manhole		Temperature Distribution, FEA
90101	ALUMINIUM MELTING FURNACE, Anchors		Failure Analysis, FEA
90109	COMBUSTION CHAMBER, Regular and Bracket Areas		Temperature Distribution, FEA / CFD
90111	WASTE INCINERATION, Bracket Brick		Rupture Failure Analysis, FEA
90112	GLOW BASE STANDS, Support Subconstruction		Bearing Capacity, FEA
90123	PUSHER PLATE FURNACE, Arch Vault, Steel Casing		Bearing Capacity, FEA
90125	CIRC. FLUIDIZED BED PIPING, Compensator, Spring Support		Stress and Shift Design, FEA
90126	SECONDARY COMBUSTION CHAMBER, Venturi Lining		Thermodynamic Efficiency, CFD



Reinforced Concrete & Special Constructions

Expert Opinion & Failure Analysis

Structural Engineering of New and Existing Historical Towers

Soil Interaction, Dynamics and Earthquake Engineering

Stiffness Oriented Calculation Methods

Close-To-Reality Stress Calculation

External and Induced Forces

Crack and Deflection Analysis

Parametric Studies of Overall Behavior

Strengthening and Repair Measures

Maintenance and Life Cycle Study

Watertight Buildings (tanks, troughs etc.)

Historical Structures

Steel and Lattice Structures

Composite Materials and Cross Sections

Projects REINFORCED CONCRETE & SPECIAL CONSTRUCTIONS

Excerpt by 07.2020

PNr	Building	Owner	Task
90001	CRANEWAY Buchholz	ELSKES	Load Bearing, Strengthening
90004	INDUSTRIAL FLOOR Bochum	THELEN	Expert Opinion
90005	SHUTTER TALSPERRE Diemeltal		Load Bearing
90019	RECONCILIATION BRIDGE A30		Load Bearing, Strengthening
90020	OPENCAST MINE BUNKER Hambach	RWE	Load Bearing
90021	HISTOR. EXHAUST DUCT Braubach	BSB	Expert Opinion
90024	STEEL SIGNAL BRIDGE Hamm	BAHN	Load Bearing, Strengthening
90030	REFIT RING Lengerich	DYCKERHOFF	Load Bearing
90050	CONCRETE SKELETBUILDING Porz	DEUTZ	Maintenance and Repair
90056	STEEL PODEST Niederaußem	RWE	Structural Engineering
90063	TIPPING POINT Tagebau Fortuna	RWE	Load Bearing
90064	SIDE BUILDING Mülheim-Kärlich	RWE	Load Bearing
90073	ROPE PROTECTION Staudinger	WIEMANN	Structural Engineering
90075	GFK-BANDS, Chimney Schkopau	UNIPER	Structural Engineering
90076	FOUNDATION Tagebau Hambach	RWE	Load Bearing
90077	SIDE PROTECTION NET Hallendach	E&P	Structural Engineering
90083	CONSOLE SCAFFOLDING Staudinger	UNIPER	Structural Engineering
90088	STEEL PODEST Schkopau	UNIPER	Structural Engineering
90110	GROUND PLATE DEEPGARAGE Köln		Expert Opinion
90116	CONCRETE PANALS Hambach	RWE	Load Bearing
90122	CONSOLE SCAFFOLDING ROPES	BEROA	Structural Engineering
90127	LOAD GALLOW Essen	MENDE	Structural Engineering

PRESENTATIONS & PAPERS

Excerpt by 07.2020

2020.04	Feuerfest-Symposium, Freiberg	Thermomechanische Analysen im Feuerfestbau Möglichkeiten und Vermeidung von Fehlern (<i>postponed</i>)
2019.10	ICCT Conference, Edinburgh	Statics for Ropes on Tower Construction Sites *)
2019.06	DGFS Fachtagung, Düsseldorf	Thermomechanical Analyses in Refractory Construction Possibilities and Avoidance of Possible Errors
2019.05	CICIND Conference, Madrid	Draught Losses Changes and Consequences *)
2019.05	BISV (IHK), Köln	Wirklichkeitsnahe Finite-Elemente-Analysen Anwendung im Bauwesen und Einsatzmöglichkeiten im Sachverständigenwesen
2019.03	VGB Fachtagung, Essen	Feuerfeste Auskleidungen unter thermomechanischen Gesichtspunkten
2017.09	CICIND Conference, Vilnius	Shotcrete Sheathing of a 65m-Chimney *)
2017.03	J+G Wirbelschichtworkshop	Thermomechanical FEM-Analyses
2016.10	ICCT Conference, Rotterdam	Keynotes of the Design & Analysis of Towers & Tanks Irrespective of Wind Load Capacity *)
2015.09	CICIND Conference, Boston	Conversion into Wet Operation Problems of a 200m R/C Chimney w/ Sectional Lining *)
2015.04	DGFS Fachtagung, Düsseldorf	Stress-Oriented Design of the Anchors in Refractories
2015.06	DGFS MV, Nürnberg	200m-Schornstein eines Braunkohlekraftwerks Auswirkungen der Umstellung auf Nassbetrieb „Wet-Stack“ - ohne Wiederaufheizung hinter REA *)

*) paper and/or slides available



B+P, BREDDERMANN+PARTNER, ist eine Gesellschaft unabhängiger Beratender Ingenieure und wird von 3 Partnern mit zusammen über 60 Jahren Berufserfahrung im Konstruktiven Ingenieurbau geführt. **B+P** ist auf turmartige Bauwerke, Feuerfestanlagen und Sonderkonstruktionen des Industriebaus spezialisiert. **B+P** berät, plant und begutachtet im öffentlichen oder privaten Auftrag. Dipl.-Ing. Martin Breddermann ist von der Ingenieurkammer-Bau NRW öffentlich bestellter und vereidigter Sachverständiger für Industrieschornsteine.



B+P, BREDDERMANN+PARTNER, is a company of independent Consulting Engineers and is managed by 3 partners with together more than 60 years of professional experience in structural engineering. **B+P** specialises in tower-like structures, refractory plants and special constructions in industrial construction. **B+P** advises, plans and appraises on public or private contracts. Dipl.-Ing. Martin Breddermann is a publicly appointed and sworn expert for industrial chimneys by the NRW Chamber of Civil Engineers.



B+P, BREDDERMANN+PARTNER, es una empresa de Ingenieros Asesores independientes y está dirigida por 3 socios que juntos tienen más de 60 años de experiencia profesional en ingeniería estructural. **B+P** se especializa en estructuras similares a torres, plantas refractarias y construcciones especiales en la construcción industrial. **B+P** asesora, planifica y evalúa contratos públicos o privados. El ingeniero Dipl.-Ing. Martin Breddermann es un experto en chimeneas industriales nombrado y jurado por la Cámara de Ingenieros de Renania del Norte-Westfalia