PRODESIGN

ENGINEERING & CONSTRUCTION

Stay in touch

SMART SOLUTIONS, WISE DECISIONS

BUCURESTI [Chindiei 16A] ▪ CLUJ NAPOCA [G-ral Eremia Grigorescu 110] ▪ TIMISOARA [Snagov 2C]
CHISINAU [Uzinelor 6A] ▪ BALTI [Industriala 4]

COMPANY PORTFOLIO, REPRESENTATIVE WORKS

- Office Building 2S+St+16E+Et - Orhideea Towers, location: Bucharest
  surface: cca. 57.000,00 sqm, phase: P.Th.+D.E.
- Office Building 2S+P+7E – Office Building Sperantei Street, location: Bucharest
  surface: cca. 12.000,00 sqm, phase: D.T.A.C
- Office Building 2S+P+14E - OV Building, location: Bucharest
  surface: cca. 46.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Reabilitare Office Building 2S+P+12E - BCC, location: Bucharest
  surface: cca. 18.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Office Building 3S+P+10E+Et - Victoria Office & Residence, location: Sibiu
  surface: cca. 46.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- 2X Office Building 3S+P+10E – Maratex Center, location: Baia-Mare
  surface: cca. 32.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- 2x Office Buildings S+P+2E / S+P+3S – Ardoris, location: Karben
  surface: cca. 9.000,00 sqm, phase: P.Th.+D.E.
- Residential Building D+P+4E – Ion Radu, location: Bucharest
  surface: cca. 4.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Residential Building 1S+P+12E - Adama Residence, location: Timisoara
  surface: cca. 21.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- 4X Residential Building 1S+P+4E - Kaßbergstraße, location: Chemnitz
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E.
- Hotel 1S+P+10E – Maratex Center, location: Baia-Mare
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Art Gallery P+3E – Maratex Center, location: Baia-Mare
  surface: cca. 1.500,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Recreational and Sports Facilities – Steaua Muresului Center, location: Simeria
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Consolidation and Rehabilitation of the mansion - Prince Nicolae, location: Tohani
  surface: cca. 2.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Medical Center P + 1E – Synevo Laboratory, location: Bucharest
  surface: cca. 8.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Radius Mall P+2E – Maratex Center, location: Baia-Mare
  surface: cca. 110.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Iris Mall Rehabilitation P+2E – Iris Center, location: Bucharest
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E.
- Rehabilitation & Expansion Viva Mall P+2E – Viva Center, location: Pitesti
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E.
- Hervis, P+1E – Hervis Sports, location: Bucharest
  surface: cca. 2.000,00 sqm, phase: P.Th.+D.E.
- Hipermarket Kaufland, P+2E – Kaufland, location: Bucharest
  surface: cca. 30.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Hipermarket Kaufland – Kaufland, location: Bucharest
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Hipermarket Kaufland – Kaufland, location: Ploiesti

surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C

- Hipermarket Kaufland – Kaufland, location: Medgidia
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Hipermarket Kaufland – Kaufland, location: Casqmina
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Hipermarket Kaufland – Kaufland, location: Targu-Mures
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Maintenance Center – OMV Petrom, location: Ploiesti
  surface: cca. 30.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Maintenance Center – OMV Petrom, location: Berca
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Maintenance Center – OMV Petrom, location: Bradesti
  surface: cca. 7.500,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Maintenance Center – OMV Petrom, location: Suplac
  surface: cca. 8.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Maintenance Center – A1 Sebes - Orastie, location: Sebes
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E.
- Trimodal Warehouse & Office Building – ILR Logistica Romania, location: Giurgiu
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E.
- Warehouse BUW 17 – CTP Park km 23 A1, location: Giurgiu
  surface: cca. 135.000,00 sqm, phase: P.Th.+D.E.
- Warehouse – Real Hypermarket, location: Craiova
  surface: cca. 4.000,00 sqm, phase: P.Th.+D.E.
- Warehouse & Office Area – Euromarketing & Distribution, location: Bucharest
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E.
- Refrigeration and Freezing Warehouse P +1 – Alaska, location: Bucharest
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- 9 Gears Gearbox Factory P +1– Daimler Mercedes, location: Sebes
  surface: cca. 76.000,00 sqm, phase: P.Th.+D.E.
- Rehabilition of the Production Areas P +1 – Ford, location: Craiova
  surface: cca. 12.000,00 sqm, phase: P.Th.+D.E.
- Bearing Factory BAIII P +1 – Inna Schaeffler, location: Brasov
  surface: cca. 4.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Bearing Factory BAIV P +1 – Inna Schaeffler, location: Brasov
  surface: cca. 20.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Bearing Factory BAV P +1 – Inna Schaeffler, location: Brasov
  surface: cca. 40.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Bearing Factory P +1 – NTN, location: Sibiu
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Automotive Factory P +1 – Opsan, location: Pitesti
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Car Wiring Factory P +1 – Leoni Wiring Systems, location: Bistrita
  surface: cca. 18.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Car Wiring Factory P +1 – BAI Gebauer & Griller, location: Balti

surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C

- Car Wiring Factory P +1 – BAII Gebauer & Griller, location: Balti
  surface: cca. 12.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Car Wiring Factory P +1 – Sumitomo, location: Orhei
  surface: cca. 28.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Car Wiring Factory P +1 – Draexlmaier, location: Balti
  surface: cca. 30.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Car Wiring Factory P +1 – Coroplast, location: Causeni
  surface: cca. 12.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Furniture Factory Extension P +1 – Corom, location: Valcea
  surface: cca. 4.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Electrical Components Factory P +1 – Eaton, location: Baia-Mare
  surface: cca. 12.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Metal Structures Factory P +1 – Montaj Carpati, location: Ploiesti
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Metal Structures Factory P +1 – Media Advertising, location: Bucharest
  surface: cca. 3.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Service and Dealer P +1 – Tatra, location: Bucharest
  surface: cca. 4.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Urea Production Factory - Azomures, location: Targu-Mures
  surface: cca. 14.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Precast concrete factory P +1 – Semmelrock Stein + Design, location: Giurgiu
  surface: cca. 8.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Concentrated Fodder Factory – Avicola, location: Crevedia
  surface: cca. 8.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Fish Processing Factory over P +1– Negro 2000, location: Bucharest
  surface: cca. 4.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Meat Processing Factory P +1 – Agroardeal, location: Bistrita
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Milk Processing Factory P +1 – Vilactil, location: Bistrita
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Milk Processing Factory P +1 – Iorom, location: Teleorman
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Milk Processing Factory P +1 – Eurocheese, location: Bucharest
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Milk Processing Factory P +1 – Portas, location: Botosani
  surface: cca. 7.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Bakery Factory P +1 – La Loraine, location: Turda
  surface: cca. 6.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Silose and Grain Processing Unit – Teraccult, location: Arad
  surface: cca. 10.000,00 sqm, phase: P.Th.+D.E./D.T.A.C
- Logistics Park Systemization – CT Park km 23 A1, location: Giurgiu
  surface: cca. 200 hectare, phase: P.Th.+D.E./D.T.A.C

COMPANY PHILOSOPHY

HOW WE ADD VALUE TO STRUCTURAL ENGINEERING

PRODESIGN ENGINEERING & CONSTRUCTION provides functional, feasible and effective structural solutions to its customers, which meet the requirements of safety and structural stability, space and comfort, also precisely meeting the expectations and the vision of our beneficiaries. Our team's experience and design and consultancy portfolio cover all fields of structural engineering, as our clients are architectural offices, corporations and institutions, developers, building enterprises and general building contractors, government agencies. Our clients are visionaries, our solutions make their visions become reality.

Professionalism, quality and responsibility. These are the basic values that we transfer to our customers through our work. The greater the professional challenges, the greater our enthusiasm is. As general designers or structural frame designers, we have prepared construction documents, while providing general consultancy services and project management for different significant investments in fields such as civil engineering, industry and agriculture, engineering and technology.

In the portfolio of projects and services performed and provided by **PRODESIGN ENGINEERING & CONSTRUCTION** you will find residential buildings, office buildings, shopping centers, cultural centers, multipurpose centers for entertainment and recreation, industrial halls with different functions of production, technological structures, processing factories, logistics warehouses for freezing and refrigeration, agricultural farms and storage and silo facilities, in other words, the full range of constructions which govern the operation of a company in close relation to the environment.

Our philosophy, culture and technical expertise are the elements that define us as a serious and valued company in the construction field, while at the same time generating long and valuable relationships with all customers and partners.

(Orhideea Towers BUCHAREST)
https://youtu.be/r3r15auB5Gg

(Orhideea Towers BUCHAREST)
https://youtu.be/AXM3QYv9Qv8

CULTURE

CULTURE AND CORE VALUES = OUR STRENGHTS

When confidence, ingenuity and excellence are brought together, even the seemingly impossible becomes possible. **PRODESIGN ENGINEERING & CONSTRUCTION** is a company motivated by people, places and the possibilities created by social and everyday dynamics. The past, our experience and the efficiency of the solutions applied by our designers and consultants give us the confidence that there is no challenge that we cannot face, that we do not want.

Our culture is aimed at customers with big ideas, to visionaries, at those who understand and capitalize on the contribution that structural engineering brings to every project. Big ideas create great opportunities, challenges and continuous detailed research in order to implement the innovative, feasible and effective structural solutions. Our technical culture underlays countless structural possibilities that we offer to our customers.

We hire talented engineers who wish to excel in every field of our business, from structural engineering to consultancy and management. We cultivate professionalism and excellence through continuous specializations. Initiatives are rewarded with

responsibility and freedom to explore new technical possibilities within our field of activity in detail, thus creating professional fulfillment and pride for those who are involved.

We operate in an environment of perfect cooperation, trust, innovation and excellence. It is essential for us to permanently maintain this environment inside our company, as well as outside the company, with our customers, partners and all our collaborators.

TECHNOLOGY

TECHNOLOGY + TECHNICAL EXPERTISE = ENGINEERING ART

With our imagination and with the help of modern technology we achieve real works of art in structural engineering which shape the space and the building system. High and very high buildings in seismic areas, in different structural systems, made from different materials, reinforced concrete, metal, or mixed steel-concrete (BAR). Production, processing or storage halls executed in optimal structural variants, in metal or mixed prefabricated solutions. Metal roofs made of Euprofile beams and purlins, welded steel plates, latticed beams and purlins. Layered wooden roofs. We respect and foster the creation of architects. Each structural system complies with the architectural, comfort, functionality and last but not least optimal execution costs requirements, depending on the budget of each investor.

We use advanced technology and software in order to offer performant structural, optimal, feasible and effective solutions. Ww have the technological potential (hard & software) in order to transform our solutions into true engineering works of art. **PRODESIGN ENGINEERING & CONSTRUCTION** has many licenses for performant software, among which we shall only mention a few, namely: **AXIS VM, AUTOCAD LT – AUTODESK, XSTELL – TEKLA STRUCTURES, ALLPLAN – NEMETSCHEK, GRAITEC – ADVANCE CONCRETE, NEXTBAU, ARCHITEXT.**

(Synevo Romania BUCHAREST)
https://youtu.be/XvDTsLSsqmSg

(OMV Petrom PLOIESTI)
https://youtu.be/E9VPBgJ4Ty4

MISSION AND VISION

SAFE AND EFFECTIVE STRUCTURES = LEADERS IN STRUCTURAL ENGINEERING

Behind every engineering performance stand people and ideas .... tens, hundreds, maybe thousands of hours of study and thorough research. Performance is the pinnacle of solid training, continuous improvement, resoluteness, discipline, hard work and, last but not least, our desire to provide a safe and comfortable habitat to others.

Dare-devils or continuers, **we have the mission to supply safe and efficient structures** in an optimal and functional architectural space, investing intelligence, passion and a lot of commitment into each project. Each project that we finish adds value to our team and the satisfaction of each client is our source of pride and fulfillment ... **Mission accomplished!!** By cultivating our values, step by step, day by day, year after year, investing in ourselves and in our customers, we create opportunities for growth and development.

Our vision is….to become leaders!

PRODESIGN ENGINEERING & CONSTRUCTION SERVICES

GENERAL DESIGN

With extensive experience in design, general consulting and project management for various types of investments in all areas of civil, industrial, agricultural and engineering, **PRODESIGN ENGINEERING & CONSTRUCTION**, participates as general designer in the development and implementation of technical documentations related to all phases of design **S.F., D.T., D.E. + C.S.,** respectively **D.T.A.C.**

Based on our expertise, we are able to coordinate with professionalism and liability the achievement of all technical documentation of authorization, approval and/or execution (architecture and systematization, structural engineering, MEP). In order to achieve a complete technical documentation, with correct, feasible and efficient execution cost, is required an extensive process of coordination and correlation between all the specialties which contribute to the achievement of technical documentation.

Understanding the importance and involvement of each specialty in the project, with a multidisciplinary team of specialists, we give great attention and importance to each of the aspects that contribute to achieving a compact technical solution, without gaps that would be caused by implementation of projects in the absence of a main coordinator.

(Inna Schaeffler BRASOV)
https://youtu.be/K30bbAj19YI

(Daimler Mercedes SEBES)
https://youtu.be/JJ3RSMwd9Ek

CITY PLANNING DESIGN, ARCHITECTURE AND SYSTEMATIZATION

Together with our partners, renowned offices of city planning, architecture and interior design, domestic and foreign, we offer the following services:

- we prepare and submit documentation of city planning (**PUZ, PUD**);
- we draw up feasibility studies, environmental impact, traffic, sunlight, landscape;
- arhitecture documentation at all stages of the project **S.F., D.T., D.E. + C.S. and D.T.A.C.**;
- we prepare and submit documentation of approval;
- we prepare and submit documentation of authorization.

(Kaufland PLOIESTI)
https://youtu.be/Z7u2FCR2RHw

(Kaufland BUCHAREST)
https://youtu.be/g9wLFf3MktM

Although in Romania implementing the concept of Green Building is just in the beginning, realizing the importance of environmental protection and energy efficiency, together withour external collaborators, we are able to design innovative solutions that minimize the the impact on environment and compete to reduce operating costs, improving significantly the work environment. Our consultants provide implementation services of **LEED** standards (*Leadership in Energy and Environmental Design*), **BREEAM** *(BRE Environmental Assessment Method)*, **HQE** (*Haute Qualité Environnementale*) or **DGNB** (*Deutsche Gütesiegel Nachhaltiges Bauen*), thus guaranteed to be an international authentication for your investment.

Ever since the start of the investment we provide our clients technical and logistic support so that they have ensured the comfort, security and confidence they need at the beginning and during our collaboration. From traffic studies or impact of feasible and optimal finishing details, every time we reserve time to discuss with our customers and partners, in order to hear their opinion, to understand their vision and expectations.

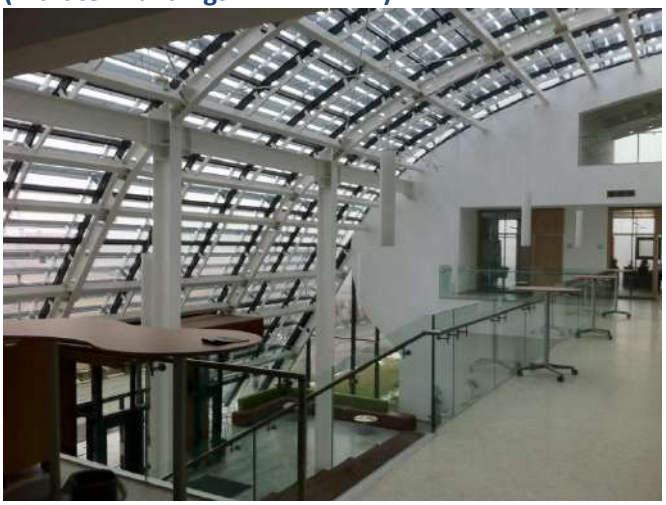
(OV Building BUCHAREST)

(Hotel Maratex BAIA-MARE)

(Radius Mall BAIA-MARE)

(Maratex Buildings BAIA-MARE)

(Sumitomo ORHEI)



(Synevo BUCHAREST)

STRUCTURAL ENGINEERING DESIGN

The main purpose of design services offered by our company is the design of various structures with different and multiple functions.

Both as general designers and as structural engineering designers, we exemplary collaborate with architects, engineers, investors or builders, offering them:

- technical documentation for all phases of design: **S.F., D.T., D.E. + C.S.** and **D.T.A.C.**;
- technical projects containing optimal feasible, sustainable and economic structural systems, result of analysis and research studies summarized in structural solutions;
- documentations that fully comply with the aesthetic, functional and comfort requirements imposed by the architects involved in the project our by our customers;
- documentations containing structural systems made in different types: monolithic reinforced concrete, precast reinforced concrete, steel, composite steel-concrete (BAR), wood;
- documentation for the execution phase containing details of the execution details of cutting type (for steel structures) or reinforcement and formwork plans (for monolithic or precast reinforced concrete), as a result of 3D performant modeling programs such as **Xsteel- Tekla** or **Allplan 2019 – Nemetschek.**
- Technical consultancy for design & build during the entire construction period of the structure.

(Azomures Targu-Mures)
https://youtu.be/oSToWWcQSjA

(Terminal Alaska BUCHAREST)
https://youtu.be/t4YADh8re-U

(Daimler Mercedes SEBES)

(Daimler Mercedes SEBES)

The complexity and completeness of the technical documentation made by **PRODESIGN ENGINEERING & CONSTRUCTION** is evident by the large amount of information available to clients upon completion of each project.

From the 3D model made by structural computer programs (static and dynamic), the calculus breviary needed for the estimation of the sizes and verifications afferent of each structural element, technical report, duty specifications and pre-measurement special to categories of work, to the drawn parts containing in detail all the graphic elements required by any manufacturer for the execution of structure, all are found in the documentation prepared by our company. **PRODESIGN ENGINEERING & CONSTRUCTION** provides technical documentation for the structural engineering design of the following types of constructions:

Civil
Constructions:

- Residential buildings;
- Office buildings;
- Administrative offices;
- Cultural functions buildings, museums and libraries;
- Hospitals and medical clinics;
- Hotels and rural locations;
- Airports and ports;
- Shopping centers - mall type;
- Supermarkets and hypermarkets;
- Recreational centers and amusement parks;
- Stadiums, gymnasiums and swimming pools;
- Fuel distribution stations;

Industrial
Constructions:

- Logistic warehouses;
- Temperature controlled logistic warehouses - refrigeration and / or freezing;
- Wood processing factories;
- Plastics processing factories;
- Steel production plants;
- Precast production plants;
- Processing and production plants of building materials, cement silos, etc;
- Oil production plats;
- Auto and auto parts production plants (automotive);
- Textile production factories;
- Electronic components and IT manufacturing facilities;
- Food processing factories: milk processing, grain processing, meat processing, fish processing;

Farms and Agricultural
Establishments:

- Concentrated feed factories;
- Grain storage;
- Cereal processing;
- Grain silos;
- Processing, drying and silage plants;
- Farms with annexes;
- Sheep, cattle and swines farms;
- Poultry farms;
- Fisheries farms;
- Ecological farms;

Engineering
Constructions:

- Sprijiniri incinte de lucru;
- Antene GSM și structuri aferente;
- Structuri de rezistență pentru panouri publicitare;
- Structuri de rezistență pentru traversări conducte;
- Pasarele pietonale;
- Bazine de retenție și stații de epurare;
- Fundații pentru eoliene;
- Structuri de rezistență pentru echipamente și utilaje;
- Grinzi de rulare;

(La Loraine Casqmia Turzii)
https://youtu.be/rmDkoaloQio

(Kaufland BUCHAREST)
https://youtu.be/H87t9ShOD-4

CONSOLIDATION AND REHABILITATION OF STRUCTURES

The reasons why a structure should go through a process of consolidation and/or rehabilitation are different and multiple. One reason for requiring such interventions in certain structures, is that, as the years pass, inevitably, any construction is subject to continuous processes of degradation as a result of the action of aggressive factors in the environment or cyclic dynamic processes affecting the structure.

Another important reason to justify such interventions is due to the way that buildings located in seismic zones were designed years before 1960, which were mainly designed to resist gravity loads and those coming from the wind. The main shortcoming of these constructions designed to gravitational loading refers to more constructive seismic deficiencies

and lack of design principles based on capacity, leading to a reduced local and global ductility. Currently, when such structures are subject to a structural assessment, in accordance with the prevailing seismic forecast, it is discovered that, in almost all cases, rehabilitation is necessary.

In order to better understand the motivation to achieve the envisaged consolidation and rehabilitation works, below there are set forth definitions of technical terms related to two types of structural interventions.

Consolidation - restoration or renewal of any part of the building (elements or group of elements) in order to achieve greater structural capabilities, such as high resistance capacity, higher stiffness or larger ductility.

STRUCTURAL ENGINEERING DESIGN DUE TO FUNCTIONAL RECONFIGURATION

When the execution of a construction is completed, its life is just at the beginning, over time, utility, function, facilities and technology requirements can be modified. Functional and architectural changes may trigger major changes in traffic flows or in the facilities requiring openings, stairs and additional garbage tanks or strengthening beams and columns due to additional loads, generally, there is a need to implement an improved system of taking over seismic horizontal loads.

Whether it is about the changes in structures of reinforced concrete, brickwork, steel or wood, or the relatively newly constructed buildings or old buildings with historical value, **PRODESIGN ENGINEERING & CONSTRUCTION** develops the best customized solutions considering the architectural, functional and technological requirements of our clients.

By implementing new technologies based on new materials (carbon fibers, glass) or classic solutions of common materials (concrete, steel, high strength mortars), as well as in case consolidation and rehabilitation projects, we are able to make structural changes by applying different technologies, depending on the budget, execution duration and the space and location requirements imposed by the client for the execution of this type of construction works.

INDIRECT SPECIAL FOUNDATION DESIGN, IMPROVING FOUNDATION LAND, BEARING SYSTEMS: ANCHORING WALLS, WORK ENCLOSURES AND ANCHORING SYSTEMS OF DEEP EXCAVATIONS, TOP-DOWN TECHNOLOGY

The nature of the subsoil is very important, sometimes defining the selection and implementation of structural solutions. The subsoil nature, defined by geo-hydrological parameters resulting from the preparation of specialized studies (geo-hydrological studies) affects the compliance and the infrastructure geometry.

INDIRECT SPECIAL DEPTH FOUNDATIONS DESIGN

In case the direct application of the foundation solutions is not possible or it is possible, but too expensive, all of that being generated by the stratification of the soil foundation, by the depth of the major groundwater developing or by very weak geotechnical parameters which have as a result, usually, low bearing capacity of the foundation land, in such cases it is necessary to implement the indirect foundation solutions.

Indirect depth foundations are the building solution which on the one hand registers the most significant advances both in terms of the execution technology evolution of the structural elements that make up the foundations displayed and in terms of diversifying their areas of use, and on the other hand is the most complex example of manifestation of the phenomenon of interaction with the soil foundation.

PRODESIGN ENGINEERING & CONSTRUCTION provides technical documentation for deep foundations consisting of:

- micropiles;
- piles;
- columns made by drilling and loaded with concrete;
- barrettes.

(Steaua Muresului SIMERIA)

(Remat Holding PLOIESTI)

(Synevo BUCHAREST)

(Synevo BUCHAREST)

IMPROVING SOIL FOUNDATION DESIGN

Fast development of the construction industry in the years of economical growth led to the design and the execution of structures that are true records of height, number of basements, foundation seals, etc.

The practical applications of knowledge in the field of geotechnics and Soil Mechanics offer a wide range of interventions to improve the soil foundation. Routine phase must be overcome in solving difficult foundation issues, valorizing even negative features of soils on which we are forced to place our buildings.

The modern techniques of hard foundation works on weak soils opens new horizons for solutions based on the methods to improve soil properties by surface and deep compaction, by injection or mixture in the jet grouting solution or by using passive and active anchors or the micropiles, in operations of consolidation through treatment of roughness. By improving the soil foundation it is aimed to increase the mechanical strength of the material and reduce its permeability.

PRODESIGN ENGINEERING & CONSTRUCTION provides technical documentation for improving soil foundation, implementing technical solutions as follows:

- surface mechanical compaction and gravel ballast;
- deep compaction, vibro compaction and vibro columns tamping ballast;
- deep drainage;
- consolidation by mixing or injections, Jet Grouting Technology or compaction injections.

BEARING SYSTEMS: ANCHORING WALLS, WORK ENCLOSURES AND ANCHORING SYSTEMS OF DEEP EXCAVATIONS, TOP-DOWN TECHNOLOGY

BEARING SYSTEMS

Bearing system aim to strengthen the soil (earth, rocks, and loads) and retain water. In this category are included all types of works and bearing systems in which structural elements are subjected to forces generated by the retained material (soil, water).

According to the existing norms and regulations, there are three types of bearing structures:

- retaining walls;
- buried walls;
- bearing composite works;

PRODESIGN ENGINEERING & CONSTRUCTION provides technical documentation for bearing systems as follows:

- retaining stone or concrete walls, including gabions;
- profile reinforced concrete walls;
- Simple wooden molds and metal elements of inventory to support excavations;
- walls of sheet piles, Berliner bearing;
- buried concrete walls;
- composite buried walls;
- anchoring walls made through “jet grouting" technology.

(Avicola CREVEDIA)

(Inna Schaeffler BRASOV)

WORK ENCLOSURES AND ANCHORING SYSTEMS OF DEEP EXCAVATIONS

The need for designing and building enclosures usually occurs when, for objective reasons, in case of buildings with two or more levels underground, due to space limitation, the infrastructure cannot be done with due regard for open excavations in slope. Such situations are common in industrial buildings, especially in the technological flows of heavy industry (metallurgy, machine construction) and for civil constructions, residential or office buildings with multiple basements, located in crowded urban areas in the vicinity of buildings or territories with maximum occupancy percentages.

According to the recommendations of the geo-hydrological study content, architecture and building structural system adopted, our company draws up technical documentation for work enclosures based on constructive solutions as follows:

- slurry walls using Kelly bucket;
- prefabricated walls;
- spaced, contiguous and secant bored piles walls;

(Kaufland BUCHAREST)

(Inna Schaeffler BRASOV)

Sorted on the resistance criterion, anchoring walls for the work premises are classified in:
- bracket anchoring walls;
- leaning anchoring walls;

In case of common leaning anchoring walls, **PRODESIGN ENGINEERING & CONSTRUCTION** projects the following types of tie bars:
- leaning systems-strut type;
- passive tie bars anchorages;
- injected prestressed bored tie bars anchorages;
- ground anti banquets;

WORK ENCLOSURES MADE BY "TOP-DOWN" TECHNOLOGY

Due to the need for continuously optimizing the manufacturing costs regarding work premises, **PRODESIGN ENGINEERING & CONSTRUCTION** implemented technical solutions, within technical documentation, based on new manufacturing processes and technologies, recognized and used worldwide. A variant of bearing the anchoring walls is the "top-down" technology, also known as the "Milan Method ".

The underground structure is made from top to bottom, and, as excavation progresses, its floors become the tie bars of the anchoring wall. Vertical loads are taken over by pillars and transmitted to barrettes or piles made in advance. Simultaneously with the basements, the method enables creating a number of levels of the building superstructure.

Although in terms of the execution costs, using this method can be advantageous, the execution is more complex and laborious for the following reasons:
- workspaces are limited - land drilling takes place under each floor to a height equal to the next level;
- holes for excavated earth removal must be provided;
- equipment with low clearance is needed;
- it is required a continuous ventilation of the workspaces;

INDOOR AND OUTDOOR MEP DESIGN

Whether there are residential buildings or office buildings, retail or manufacturing spaces, functioning in the best conditions, reliability and efficient assembly of MEP – thermal, sanitary, electrical and ventilation/air conditioning – give life to the spaces designed by us, considered essential for your comfort and safety. Since the initial phase, MEP projects conceived by our partners and collaborators, go through an extensive process of study and analysis, the results obtained in the end from the feasibility studies stand for the final documentation for all phases of design **D.T., D.E. + C.S.** or **D.T.A.C.**.

Depending on requirements, vision or requirements of the architects, in their quality as main coordinators or of our clients, in their quality as investors or constructors, facilities design under the regulations in force, exactly meet the requirements of comfort, functionality, efficiency and safety. Designing responsible, we also understand the high importance of manufacturing costs, and we make sure that each time the ratio price-quality-functionality has to be reflected in all documentation prepared.

We offer our customers complete and complex MEP projects, consulting services on design-execution, ensuring safe, secure and well design systems, efficient and economic. Based on our experience and on that of our collaborators and partners, we offer you the following documentation:

Heating installations

The new tendencies at the global level, in terms of efficient use of energy led to the creation of a demanding European legislation on the energy efficiency of buildings, so that design offices we collaborate in order to achieve the heating design works, focused on the design of more functional thermal systems, with a better performance and with a low fuel consumption. Our collaborators and partners in the design of heating installations prepare projects for the next types of installations:
- Indoor heating installations with radiators/fans/gas convectors;
- Indoor heating installations with hot air;
- Installations with high temperature radiation – infrared radiation panels, tiles;
- Indoor floor heating installations;
- Indoor electric floor heating installations;

- Indoor solar heating installations;
- Indoor solar heating installations with DHW;
- Gas, solid and liquid fired central heating;

(Gebauer & Griller BALTI)

(Gebauer & Griller BALTI)

Ventilation/air conditioning installations

Continued industrialization in the recent years together with the increased scale of industrial processes and average annual temperature, led to the development of new and complex technologies for space cooling and ventilation. If many years ago air conditioning was considered a luxury, over the years it became a necessity of the utmost importance, ensuring a favorable microclimate of the work environment in office buildings and production facilities or in the daily life of homeowners.

In production areas, hazards arising from the processes of production require constant ventilation and fresh air. In this new context, our collaborators and partners in design ventilation/air conditioning installations projects, prepare the following types of installations:

- Fan installations for heating-cooling, with central heating and chilled water source;
- Fan installations for heating-cooling, mono and multisplit type;
- VRM installations for heating-cooling, mono and multisplit type;
- Ventilation and air conditioning installations – air to air heat pump;
- Central air handling installations;
- Technological ventilation installations in industrial processes;
- Ventilation facilities with hoods for professional kitchens;
- Air conditioning installations;
- Installations against fire smoke;
- Ventilation facilities for show rooms, stores.

(Daimler Mercedes Sebes)

Sanitary & fire-fighting installations

Health and environment rules in force require new sanitary and environmental conditions in order to improve the quality of life. Thus, both for new buildings and the old ones that will be renovated, is especially important solving the drinking water supply, hot water, draining wastewater and rain-water, all in optimal functionality conditions, with responsibility for the environment, at low maintenance and operation costs. With extensive experience in the field of sanitary facilities, our collaborators and partners prepare projects for the following installations:

- Indoor sanitary installations for cold water;
- Domestic wastewater/rain-water sewerage;
- Indoor sanitary installations for hot water;
- Indoor sanitary installations with solar panels for hot water;
- Indoor sanitary installations for sewerage;
- Indoor sanitary installations for extinguishing fire PSI with hydrants, sprinklers and drencers, external hydrants;
- Outdoor sewerage installations for wastewater and rain-water;
- Outdoor installations for drinking water;
- Outdoor drainage installations;
- Intake wells, drinking water pumping stations;
- Wastewater treatment plants and micro-plants.

(Sumitomo ORHEI)

(Sumitomo ORHEI)

Electrical installations

If decades ago electricity consumption was encouraged by charging lower costs for the big industrial consumers and not only, the energy crisis in recent years has accelerated through optimization and upgrading the process of transformation of old electrical consumers in consumers with low consumption of electricity.

Global responsibility towards natural resources and also continue applications to considerable diminish pollution as a result of the electricity production process, led to the design of more efficient electrical installations in terms of consumption and maintenance with a high degree of safety. Being aware of high efficiency and safety requirements that our clients impose, our collaborators and partners prepare projects for the following electrical installations:

- Indoor electrical lighting installations;
- Ambient lighting installations;
- Architectural lighting installations;
- Street, parks, parking lighting installations;
- Indoor high-powered electrical installations;
- Indoor low powered electrical installations (TV, telephone, internet, intercom, alarm, video surveillance, audio systems);
- Signaling and fire detection equipment;
- Signaling and intrusion detection equipment;
- Automation installations;
- Ambient and street lighting;
- Fences (grounding, lightning rod);
- Electrical installations with photovoltaic panels supply;
- Electrical installations with wind systems supply.

(Gebauer & Griller BALTI)

(Gebauer & Griller BALTI)

CONSULTANCY & PROJECT MANAGEMENT SERVICES

PROJECT MANAGEMENT SERVICES INITIATION STAGE

(Delea Noua BUCURESTI)
https://youtu.be/EpdPEda-sDk

(Depozit Trimodal GIURGIU)
https://youtu.be/YJjjJxfvsT4

- Studies needed in the starting phase of the project:
  - pre-feasibility studies
  - feasibility studies
- Procurement services:
  - preparing tender documentation;
  - organizing and conducting auctions;
  - selection of subcontractors;
  - selection of materials and related services providers;
- Evaluation of possible locations:
  - evaluation in terms of architecture (RCP, PUD, limits and restrictions);
  - technical analysis of the geotechnical study - foundation conditions;
  - assessment of the environmental conditions;
- Cost-Benefit Analysis
- Preliminary project analysis – project content & organizational environment
- Specific factors;
- Availability;
- Execution technologies

PROJECT MANAGEMENT SERVICES PROJECT PLANNING

- Project management plan;
- Setting project requirements;
- Establishing the project screening area;
- Allocation method and structure of the activities;
- Defining and sequencing project activities;
- Optimizing the duration of execution;

  - fast-tracking;
  - crashing;
- Estimating resources and duration:
  - analysis;
  - optimization;
- Calendar project and activities planning
- Implementation of progress curves and progress monitoring
- Costs estimating and budgeting of the project
- Planning quality requirements
- Planning and optimization of human resources
- Developing and implementing the project communication plan
  - communication matrix;
  - material matrix;
- Risk management plan:
  - identification;
  - analysis;
  - management;
  - risk response plan;
  - risk budget;
- Contract management – planning and contracting:
  - plan contracting - legal requirements & types of contracts;
  - selection of subcontractors for the full range of services necessary for the execution of the project;
- Labor safety and security planning;
- Financial planning - estimating and budgeting Costs;
- Management planning process on the impact on the natural environment;

PROJECT MANAGEMENT SERVICES PROJECTS EXECUTION, MONITORING AND CONTROL OF PROJECTS

- **Tracking and control of the execution schedules:**
  - Concultancy in establishing the schedule for the investment framework;
  - checking schedules for achieving the proposed building by the general contractor;
  - control of the progress made towards the contractual terms with AG;
  - monitoring and coordination of design time and works provided by third companies;
- **Coordination and consultancy:**
  - coordination and technical advice to those involved in the project: users, architects, specialized committees, specialists;
  - coordination of the general contractor's deadlines with the design projects of architects, structural engineers, designers based on consumer, tenants and investors needs;
  - consulting services to the reception of the project together with the authorities and the beneficiary;
  - project together with the authorities and the beneficiary.
- **Technical quality control:**

  Design works:
  - movement diagram development of the projects and plans, coordinating inspections, checking projects under the provisions and tasks of the specialized committees and of the building permit;
  - project meetings management and preparing minutes of meeting, consultancy or technical assistance provided to engineers specialized in different areas of construction;
  - checking projects and plans in collaboration with the State Inspectorate in Construction;

  Construction:

- convening quoted specialists in decisive phase program, preparing the reports of concealed works together with the site chief or the state inspector as appropriate;
- supervision the construction works in meeting the tasks outlined in approvals and in the building permit issued by the special committees to ensure an exemplary reception in the end;
- supervising the construction works: foundations, structures, facilities, equipment, utilities, landscaping, connections;
- supervising the construction works in terms of compliance with the tender documentation, the existent technical standards and legislation in construction;
- quality control the works: checking materials, facilities, equipment, installation methods, in accordance with the contracted manufactured products or in accordance with the list of materials approved by the beneficiary;
- contracting services of the site inspectors depending on target size and range of works, responsible for preparing the reports of concealed works and preparation of the building technical book;
- organizing, convening and conducting on-site command sessions to establish the responsibilities and tasks of the management staff, the preparation of the meeting minutes;

- **Costs control:**

General contractor services and achievements:

- checking payment schedules in collaboration with the client and the general contractor;
- checking the stages of work, respectively the situations of work issued by builders, designers and service providers;
- checking and approval of invoices in accordance with the payment schedule and the stage of works, the proposal "good for paying" for the beneficiary;
- cost management, NR / NCS synoptic preparation;
- preparing waiver notes for optimization or those works which are stipulated in the contract, but which will be given up by the beneficiary and the manufacturer;
- receiving and checking order notes from the manufacturer for additional works or changes in the project solutions requested by the beneficiary;

Accomplishments and services provided by third companies, specialize committees, designers:

- acceptance of the works or performances;
- checking and approving the works and bills;

COORDINATION AND QUALITY CONTROL SERVICES

Coordination on the site - Through its certified professionals project supervisors in the specialties: construction, equipment, internal and external networks, gas, water, telecommunications, utilities, building materials, reinforcement, **PRODESIGN ENGINEERING & CONSTRUCTION** provides clients with a smooth investment, in terms of quantity and quality, certifying compliance with the law and specific regulations of the existing laws, by the counter-signature of the hidden works records, the minutes of the qualitative reception, the minutes of phases determined for each area: construction, facilities, utilities, quality material, internal and external networks, consolidation and works of art, so working with the designers, constructors and state inspectors in construction.

Quality control - The main purpose of the services offered is to ensure the quality of our work and materials placed in operation so that the planners and the investors requirements should be met. Quality control, aims at ensuring compliance for all activities whose results are a statement of compliance certifying the quality of a product or a service in accordance with certain previously specified requirements through the project theme, specifications or existing standards. Periodic monitoring conducted by **PRODESIGN ENGINEERING & CONSTRUCTION** directly impact the development of some systems that should give customers the assurance of the quality materials used and services provided, thus valuing the investment made.

PRODESIGN ENGINEERING & CONSTRUCTION SRL
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YouTube Project Video Chanel PRODESIGN ENGINEERING & CONSTRUCTION
https://www.youtube.com/channel/UC1HNDTRLIVbQ3O4Fbj7tEqw/playlists

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