CEMENT & CONCRETE

OYAK

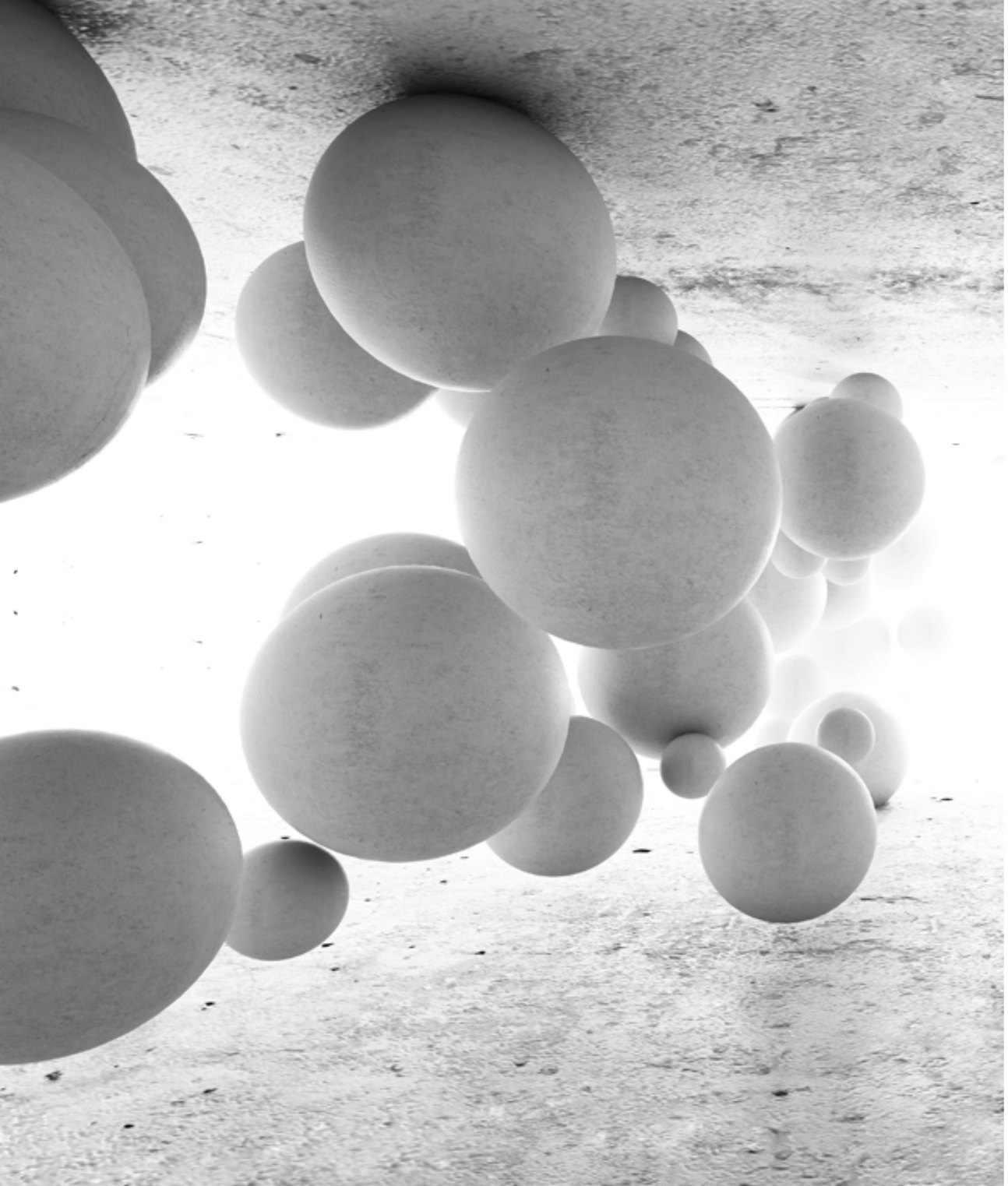
CEMENT
CONCRETE PAPER

THE BIGGEST CEMENT BRAND IN TÜRKİYE

Operating 7 plants and carrying out sales activities in 7 geographical territories as the capacity and market leader in Turkish cement industry, OYAK Cimento enjoys the proud of the vision of “becoming the biggest cement brand in Türkiye, thanks to its production capacity of 12.6 million tons of clinker and 22.5 million tons of cement, as well as its value-added products that enhance the areas of cement use.

OYAK CEMENT IN TÜRKİYE

- Integrated Cement Plant
- White Cement Production Line
- Terminal
- Ready-Mix Concrete Plant
- Aggregate Production Plant
- Grinding Plant



CEMENT

CEMENTUM

POWERCEM

NOVOCEM

DURACEM

DURACEM +

STARCEM

ALFACEM

WELLCEM

TiPLUS

CEMENTUM

CEMENTUM, is a product that is environmentally friendly as it contains 12-20% mineral admixtures and can be used in any kind of concrete applications because of its high strength and resistance.

The heat of hydration is lower when compared to Portland cement. It is suitable for use with mineral admixtures such as ground granulated blast-furnace slag, fly ash and microsilica.

Advantages

- Resistance to environmental impacts
- High early strength
- High ultimate strength
- Low carbon emission
- High workability in ready-mix concrete

Recommended Applications

- **Ready-Mix Concrete**
Suitable for production of any compressive strength class of concrete. It yields high performance in terms of ultimate strength.

- **Environmental Impacts**
Better performance than Portland cement in concretes that are exposed to environmental impacts.

- **Road Pavements**
Suitable for concrete pavements for roads with heavy traffic.

- **General Use**
Suitable for any and all kinds of grout mortar, plaster and repair works.

Reference Projects

- Vodafone Park
- Northern Marmara Highway Project
- Emaar Square
- Basaksehir Cam ve Sakura Hospital
- 42 Maslak
- Ciftci Towers
- Camlica Tunnel

POWERCEM

POWERCEM, is a product that is environmentally friendly as it contains 21-35% mineral admixtures and can be used in any kind of concrete applications because of its high strength and resistance.

The hydration heat is lower and it is more resistant to environmental impacts when compared to Portland cement. It is suitable for use with mineral admixtures such as ground granulated blast-furnace slag, fly ash and microsilica.

Advantages

- Resistance to environmental impacts
- High early strength
- High ultimate strength
- Low hydration heat
- Low carbon emission
- High workability in ready-mix concrete

Recommended Applications

- **Ready-Mix Concrete**
Suitable for production of any compressive strength class of concrete. It yields high performance in terms of ultimate strength.

- **Environmental Impacts**
Better performance than Portland cement in concretes that are exposed to environmental impacts.

- **Road Pavements**
Suitable for concrete pavements for roads with heavy traffic.

- **General Use**
Suitable for any and all kinds of grout mortar, plaster and repair works.

Reference Projects

- Gayrettepe-Istanbul Airport Subway Line
- Halkali-Istanbul Airport Subway Line

NOVOCEM

NOVOCEM, is an environmentally-friendly product as it contains 36-50% mineral admixtures, and it is highly resistant to environmental impacts.
In addition, it is suitable for use in mass concrete casting thanks to its low heat of hydration.

Advantages

- Resistance to environmental impacts
- Low carbon emission
- Low hydration heat
- High workability in concrete and plaster applications

Recommended Applications

- **Environmental Impacts**
Suitable for waste water treatment plant projects, industrial flooring concrete being exposed to sulfate attack, concrete to be made for construction of dam and water channels.

- **Ground Injection Projects**
Thanks to its high blaine value and high resistance to environmental impacts, it is suitable for ground improvement projects.

- **General Use**
Suitable for any and all kinds of grout mortar, plaster and repair works.

DURACEM

DURACEM, is suitable for use in construction projects in environments that are exposed to sulfate attack and seawater as it contains 36-65% ground granulated blast-furnace slag.

It is not only highly resistant to sulfate but also suitable for projects with mass concrete thanks to its low heat of hydration and for the concrete design of environmentally-friendly and green buildings thanks to its low carbon emission.

Advantages

- High resistance to environmental impacts
- High resistance to sulfate attack
- Low hydration heat
- Low carbon emission
- High workability in ready-mix concrete

Recommended Applications

- **Ready-Mix Concrete**
Suitable for production in environments that are exposed to sulfate attack, such as marine and port building, bridges, dams and water channels.

- **Precast Production**
Suitable for infrastructure and reinforced concrete underground water pipe production.

- **Industrial Flooring**
Suitable for industrial flooring that is exposed to sulfate attack.

- **Ground Injection**
Suitable for use in ground injection projects.

Reference Projects

- Tosyali Port Project
- OYAK Port
- Shuakhevi HPP Plant Project (Georgia)
- Ordu Freeway Road Project

DURACEM +

DURACEM PLUS, is suitable for use in construction construction projects in environments that are exposed to sulfate attack and seawater as it contains 66-80% ground granulated blast-furnace slag.

It is not only highly resistant to sulfate but also suitable for projects with mass concrete thanks to its low heat of hydration and for the concrete design of environmentally-friendly and green buildings thanks to its low carbon emission.

Advantages

- High resistance to environmental impacts
- High resistance to sulfate attack
- Low hydration heat
- Low carbon emission
- High workability in ready-mix concrete

Recommended Applications

- **Ready-Mix Concrete**
Suitable for production in environments that are exposed to sulfate attack, such as marine and port building, bridges, dams and water channels.

- **Precast Production**
Suitable for infrastructure and reinforced concrete underground water pipe production.

- **Industrial Flooring**
Suitable for industrial flooring that is exposed to sulfate attack.

- **Ground Injection**
Suitable for use in ground injection projects.

Reference Projects

- Eurasia Tunnel
- Osmangazi Bridge
- Tripoli Port
- Camlica Mosque
- Levent Mosque

STARCEM

STARCEM, STARCEM is a product with high durability as it contains 36-55% mineral admixtures. It also has low carbon emission. It is suitable for production that requires resistance to environmental impacts.

Advantages

- Resistance to environmental impacts
- Low carbon emission
- High workability

Recommended Applications

- **Environmental Impacts**
Suitable for waste water treatment plant projects, industrial flooring concrete being exposed to sulfate attack, concrete to be made for construction of dam and water channels.

- **Ground Injection Projects**
Thanks to its high blaine value and high resistance to environmental impacts, it is suitable for ground improvement projects.

- **General Use**
Suitable for any and all kinds of grout mortar, plaster and repair works.

ALFACEM

ALFACEM, is highly resistant to environmental impacts as it contains 51-65% mineral admixtures. Alfacem is an environmentally-friendly product that makes a difference with its carbon footprint, which is lower than 350 kg CO_2/ton. In addition, it is suitable for use in mass concrete casting thanks to its low heat of hydration.

Advantages

- Resistance to environmental impacts
- Low carbon emission
- Low hydration heat
- High workability in concrete and plaster applications

Recommended Applications

- **Environmental Impacts**
Suitable for waste water treatment plant projects, industrial flooring concrete being exposed to sulfate attack, concrete to be made for construction of dam and water channels.

- **Ground Injection Projects**
Thanks to its high blaine value and high resistance to environmental impacts, it is suitable for ground improvement projects.

- **General Use**
Suitable for any and all kinds of grout mortar, plaster and repair works.

WELLCEM

WELLCEM, is a special product that can be used at 260°C and 20.000 psi, and it has excellent workability and mechanical properties for filling of the sides of oil boreholes. It does not set up to a depth of 6.000 meter, and it shows appropriate strength for drilling procedures even at high temperatures and under high pressure.

It is produced in compliance with API Spec 10 A standard and has high sulfate resistance (HSR).

Advantages

- High sulfate resistance
- Appropriate setting time
- Appropriate strength at high temperatures and under high pressure

Recommended Applications

- Oil Boreholes
- Geothermal Power Plant

Reference Projects

- Socar AQS Salt Lake Underground Natural Gas Storage Project
- TPAO Projects
- Kazan Soda
- Zorlu Dogal Elektrik Uretim A.S.

TiPLUS

Self-Cleaning and
Air-Cleaning Cement

Concrete surfaces obtained with **TiPLUS** convert NOx gases in the air, which are harmful to human health, into harmless compounds by using sunlight and increases the quality of the air we breathe in.

Thanks to its self-cleaning feature, TiPLUS also ensures that concrete surfaces remain clean.

Advantages

- Cleans its surface through sunlight
- Eliminates NOx gases in the air
- Nanotechnological product
- High ultimate strength
- An aesthetic look
- Reduces the costs of exterior painting

Recommended Applications

- Buildings, Parks, Garden Furniture
- Sidewalk Pavement
- Sidewalk Paving Stone
- Facade Elements
- Concrete roads and roads with stone blocks
- Noise Barriers
- Tunnel Interior
- Safety Barriers
- It can be used anywhere that involves concrete

SULFATE-RESISTANT PORTLAND CEMENT

CEM I 42,5 R-SR5
CEM I 42,5 R-SR3

Thanks to their low C_3A content, CEM I 42.5R-SR5 and CEM I 42.5R-SR3 products are suitable for use in any kind of construction projects in environments that are exposed to sulfate attack and seawater.

Advantages

- High resistance to Sulfate attack
- Early strength development
- High strength at all ages
- Short stripping time
- Suitable for use with mineral admixtures

Recommended Applications

- **Ready-Mix Concrete**
Suitable for production of any compressive strength class of concrete. It is suitable for production in environments that are exposed to sulfate attack, such as marine and port building, bridges, dams and water channels.

- **Precast Production**
Suitable for precast and prestressed concrete production. It is suitable for infrastructure and reinforced concrete underground water pipe production.

- **Industrial Flooring**
Suitable for industrial flooring that is exposed to sulfate attack.

- **Ground Injection**
Suitable for use in ground injection projects.

Reference Projects

- Star Refinery Project
- Aliaga Port Project
- Alasehir Mey Icki Plant
- Ilısu Dam

GROUND GANULATED BLAST-FURNACE SLAG

GGBFS (ground granulated blast-furnace slag) is obtained by cooling, granulating and finally grinding the molten slag, which forms as a by-product during the production of pig iron from iron ore in blast furnaces.

GGBFS can replace cement as a mineral admixture in concrete production or can be used in the production of cement with admixtures.

Advantages

- High resistance to chemical impacts
- High sulfate resistance
- High durability
- High ultimate strength
- High workability
- Low hydration heat
- Low shrinkage
- Low permeability
- Low carbon emission

Recommended Applications

- **Ready-Mix Concrete**
Suitable for use with cement in the production of cement for coastal and port constructions, offshore structures, waste water plants, foundation piles, water canals and dam.

- **Mass Concrete**
Suitable for use in mass concretes requiring low hydration heat. It minimizes the risk of thermal crack formation.

- **Industrial Flooring Concrete**
Suitable for use in the production of industrial flooring concrete that is exposed to sulfate attack.

Reference Projects

- Spine Tower
- Emaar Square
- Gayrettepe-Istanbul Airport Subway Line
- Halkali-Istanbul Airport Subway Line
- Basaksehir Cam ve Sakura Hospital
- 42 Maslak
- Ciftci Towers
- Istanbul Airport

CONCRETE

DURABET

DURABET+

AQUABET

FIBRABET

SKYBET

SMARTBET

REPABET

WHITEBET

iZOBET

DUALBET

POROZBET

DURABET

Concrete With A Service Life of 100 Years

DURABET; is a special, impermeable concrete with low risk of cracking and resistance not only to severe environmental impacts but also to freeze/thaw effect, and it is provided with heat development control, and it is so durable that it does not require maintenance for a very long time.

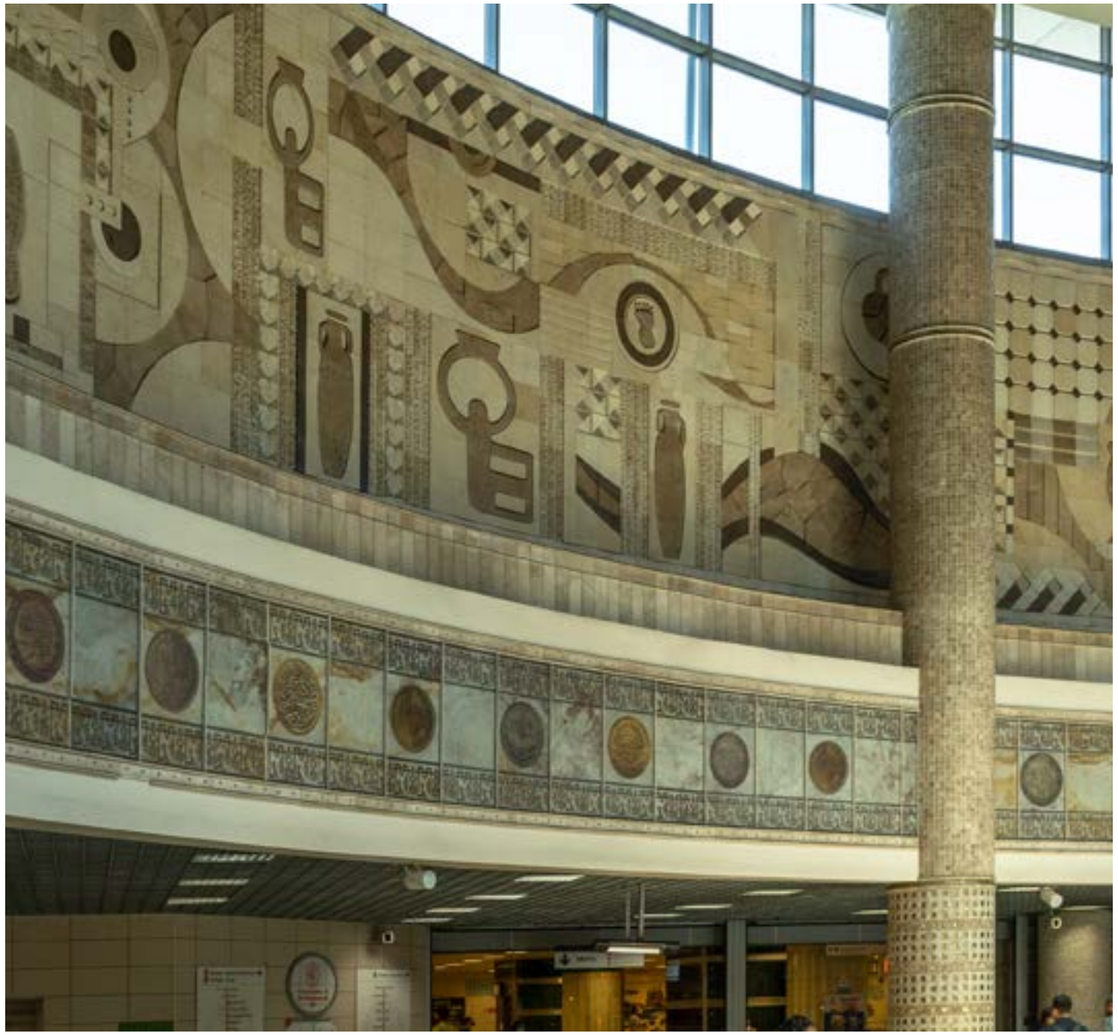
Concrete Components

The raw materials, which are proven to be qualified, selected and stocked in accordance with the national and international standards, are used in the production of DURABET. The process from manufacturing of raw materials to in-situ cast of concrete is kept under full control.

Cement: Cements of type CEM I, CEM II and CEM III, which are produced specially for DURABET®, are used at OYAK Cimento plants.

Aggregate: It is obtained from the sources that are selected based on the petrographic analysis results, which show that such sources are suitable.

Mineral and Chemical Admixtures: GGBFS and/or fly ash are used with specially-developed, new-generation super plasticizer chemical admixtures, which are perfectly suitable for these products.



Recommended Applications

- Structures, which require long-term resistance against severe environmental impacts
- Underwater structures and structures that are in contact with groundwater
- Construction of foundations and infrastructure
- Engineering structures such as viaducts, roads, tunnels, bridges, etc., which are highly exposed to freeze/thaw effect, and structures that are exposed to seawater conditions, with special additions as needed.

Precautions in Application

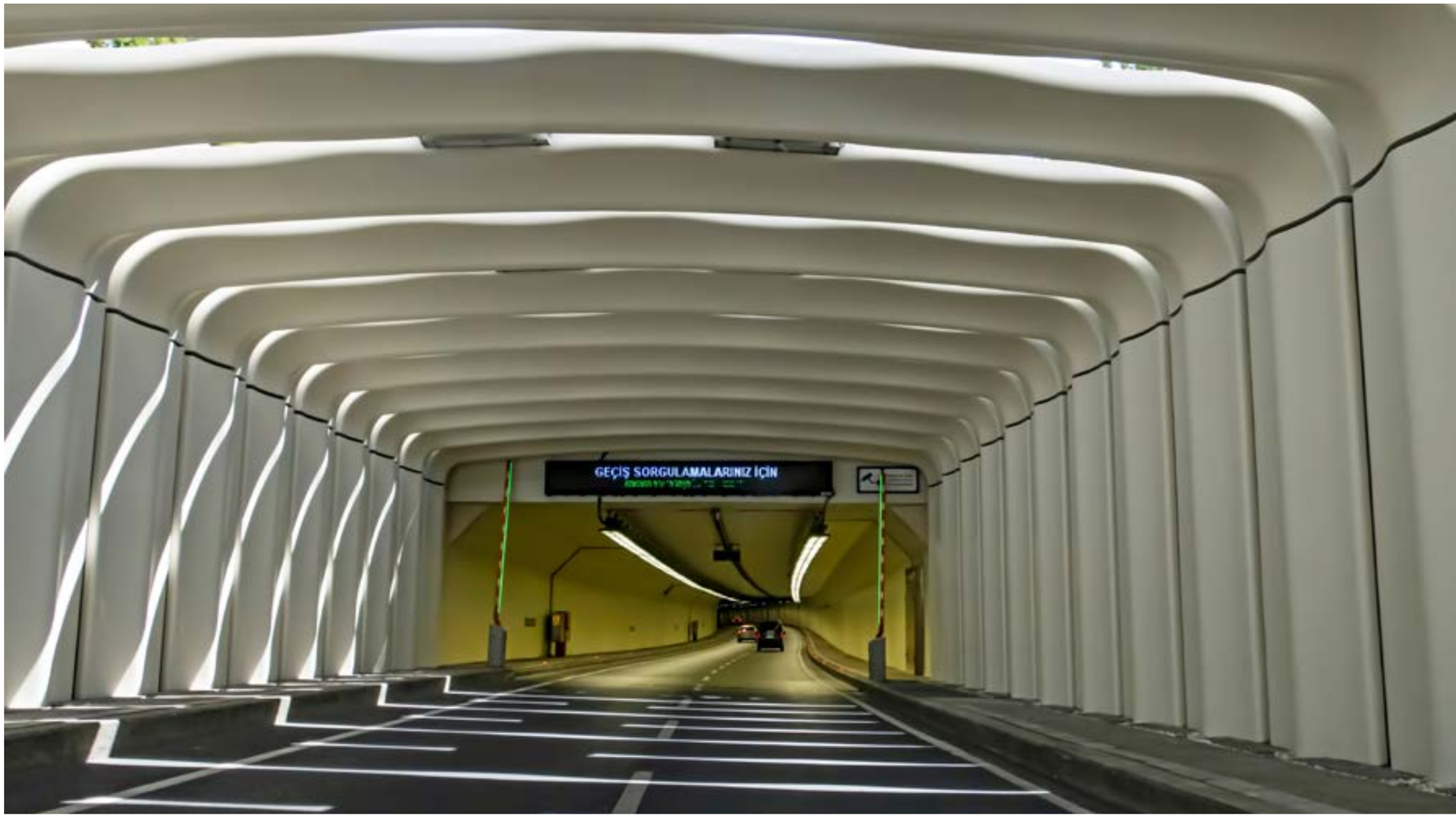
- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Reference Projects

- Marmaray Project
- Mimar Sinan Mosque
- Osmangazi Bridge
- Eurasia Tunnel
- Emaar Square
- Camlica Mosque

DURABET

Concrete With A Service
Life of 100 Years



Advantages

- When compared to standard concrete;
  - · Much longer life
  - · Much higher durability
  - · Lower chloride ion permeability
  - · Lower heat development
  - · Lower shrinkage formation

Compressive Strength Class	C35/45 - C80/90
Consistency Class	> S4
Maintains the Consistency	for * 2 Hours
Air Content (%)	2-6
Adiabatic Heat Development Q m,7 days (kj/kg)	160 - 280
Activation Energy E >20°C (J/mol)	27.000-34.000
Cl Permeability (m^2/s)	$< 3 \times 10^{-12}$

*at an ambient temperature of 20°C

DURABET+

100 Yıl Servis Ömürlü Beton

DURABET® PLUS; is an impermeable concrete with low risk of cracking and resistance to severe environmental impacts. It is provided with heat development control, and it is so durable that it does not require maintenance for 100 years, thanks to its high performance.

Concrete Components

The raw materials, which are proven to be qualified, selected and stocked in accordance with the national and international standards, are used in the production of DURABET® PLUS. Whole process, starting from the raw material production to concrete casting in the field, is kept under full control.

Cement: Cements of type CEM I, CEM II and CEM III, which are produced specially for DURABET®, are used at OYAK Cimento plants.

Aggregate: It is obtained from the sources that are selected based on the petrographic analysis results, which show that such sources are suitable.

Mineral and Chemical Admixtures: Specially-developed, new-generation super plasticizer chemical admixtures, which are perfectly suitable for slag cement, are used.

Recommended Applications

- Structures which require long-term resistance against severe environmental impacts,
- Underwater structures and structures that are in contact with groundwater
- Engineering structures such as viaducts, roads, tunnels, tube tunnels, bridges, etc.,
- Structures that are exposed to seawater conditions,
- Construction of foundations and infrastructure.

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Reference Projects

- Marmaray Project
- Mimar Sinan Mosque
- Osmangazi Bridge
- Eurasia Tunnel
- Emaar Square
- Camlica Mosque

DURABET+

100 Yıl Servis Ömürlü Beton

Advantages

- When compared to standard concrete;
  - Much higher durability
  - Lower chloride ion permeability
  - Lower heat development
  - Lower shrinkage formation

Compressive Strength Class	$f_{cm\ 56\ days}$: 70-80 MPa
Consistency Class	S4 and S5
Maintains the Consistency	*2,5 Hours
Air Content (%)	< 2,5 %
Cl Permeability (m^2/s)	< 3 x 10^{-12} m^2/s

*at an ambient temperature of 20°C

AQUABET

Water-Impermeable Concrete

AQUABET, is a special concrete with reinforced impermeability, designed to be used in wet and humid environments.

The permeability of concrete is a result of the microcracks between the voids in the concrete and the cement paste-aggregate interface. For durability, it is important that the concrete is impermeable and free from voids. Durability and permeability of concrete are closely related phenomena. Fluid permeates through concrete through pressurized water, capillary water absorption and water vapor.

If the necessary measures are not taken for impermeability, then these three permeability phenomena will increase accordingly and have adverse effects on the concrete, resulting in durability problems.

It is of great importance to make sure that the concretes to be used in the environments, which are exposed to water or moisture, are suitable for environmental conditions. Use of insulation materials in such environments does not eliminate the high risk of exposure to moisture and corrosion. Corrosion is destructive to buildings. Impermeable concretes protect iron and steel reinforcement against corrosion and external factors.

Concrete Components

The raw materials, which are proven to be qualified, selected and stocked in accordance with the national and international standards, are used in the production of AQUABET. Whole process, starting from the raw material production to concrete casting in the field, is kept under full control.

Cement: Cements of type CEM I, CEM II and CEM III can be used.

Aggregate: It is obtained from sources that are selected in accordance with the TS 706 EN 12620 standard.

Chemical Admixtures: Specially-developed, new-generation chemical admixtures, which are perfectly suitable for the cement and aggregate used, are used.

Recommended Applications

- Attics and terraces
- Pools and water tanks
- Drainage and water channels
- Shear walls in contact with the soil
- Foundations in wet or damp ground

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

AQUABET

Water-Impermeable
Concrete

Criteria for Evaluation of Depth of Water Penetration Under Pressure for Concrete (TS EN 12390-8)

Water Impermeability Review	Depth of Water Penetration
Permeable Concrete	> 50 mm
Impermeable Concrete	< 50 mm
Impermeable in Harmful Environments	< 30 mm

Compressive Strength Class	C25/30
	C30/37
	C35/45
	C40/50
Consistency Class	S3,S4,S5
Maintains the Consistency	for * 1 Hour
Total Air Content	< 2,5 %
Max. Depth of Water Penetration	50 mm

FIBRABET

Fiber-Reinforced Concrete

FIBRABET, is a concrete product that is reinforced with Polypropylene Fibers against early shrinkage cracks in concrete.

Concrete Components

Cement: Depending on the need, cements of type CEM I, CEM II and CEM III are used.

Aggregate: The gradation of aggregate to be used has been specifically determined.

Chemical Admixtures: The type and amount of chemical admixtures are determined in accordance with the intended use.

Fiber: Polypropylene Fibers suitable for the intended use and complying with standard are used.

Recommended Applications

- Industrial flooring and field concretes
- Parking areas of housing projects
- Screed concrete used under ceramic tiles and parquet flooring
- Gas stations
- Environments with high risk of plastic shrinkage cracks

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Reference Projects

- Samsunport Port Project
- Yesilyurt Port Project

Compressive Strength Class	Minimum C20/25
Consistency	> S3
Maintains the Consistency	for 45 dk
Air Content (%)	2-6

*at an ambient temperature of 20°C

SKYBET

High Strength Concrete That Can Be Transferred Over Long Distances

SKYBET; is a special product that can be easily transferred over long distances vertically and horizontally in high-rise office and residential buildings, and it can be produced in compressive strength classes of C50 - *C100.

Concrete Components

Cement: SKYBET is produced using cements of type CEM I, CEM II and CEM III, which are produced at OYAK Cimento plants.

Aggregate: It is obtained from specially selected sources.

Chemical and Mineral Admixture: Specially-developed, new generation super plasticizer chemical and mineral admixtures are used.

Recommended Applications

- High-rise office and residential building
- Structures, which require long-distance casting on a horizontal and vertical plane
- Structures which, require long-term resistance against environmental impacts
- Structures, which require early strength and stripping time
- Structures, which require high strength
- Structures with dense reinforcement

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Advantages

- It can be pumped over long distances horizontally and vertically.
- When compared to standard concrete;
  - Much longer life
  - Much higher durability
  - Much lower water permeability
  - Much lower chloride ion permeability

Reference Projects

- Spine Tower
- Maslak, 42 Maslak Project
- Maslak CZK Ciftciler Complex
- Zincirlikuyu Tepe Prime
- Arista Bomonti Business
- Agaoğlu 212 Mahmutbey

Compressive Strength Class	C50 and Higher
Consistency	SF1-SF3
Maintains the Consistency	for * 2 Hour
Air Content (%)	2 < ...< 6

*at an ambient temperature of 20°C

SMARTBET

Self-Compacting Concrete With High Performance For Special Castings

SMARTBET; is a special, self-compacting product that offers design freedom thanks to better surface quality, minimum segregation, easy placement and workability and superior placement quality.

*As allowed by the capacity of the plant

Concrete Components

Cement: SMARTBET is produced using cements of type CEM I, CEM II and CEM III, which are produced at OYAK Cimento plants.

Aggregate: It is obtained from specially selected sources.

Chemical and Mineral Admixture: Specially-developed, new generation super plasticizer chemical and mineral admixtures are used.

Recommended Applications

- Production of precast elements
- Structures with dense reinforcement,
- Structures requiring smooth surfaces of superior quality,
- Reinforcement projects
- Construction elements with different geometry, requiring complicated and detailed forms.
- In case of failure to apply vibration (underwater etc.),
- Office and residential buildings and engineering structures

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Advantages

- Saving in labor costs
- Reduced labor time
- Reduction in the defects, which require repair, and thus in repair costs
- Transfer of concrete to hard-to-reach points (extremely reinforced, permanent formwork, high column, etc.)
- Excellent adherence with better placement and reinforcement compared to the standard method
- Elimination of errors caused by vibration and applicators
- Reduction in the exposure to noise and vibration occurring during vibration

SMARTBET

Self-Compacting Concrete
With High Performance
For Special Castings

Reference Projects

- Osmangazi Bridge
- 7 Tepe 7 Tunel
- Vodafone Park
- Spine Tower

Compressive Strength Class	C30 and Higher
Consistency Class	SF1-SF3
Viscosity Class	T_{500} , VS2
Maintains the Consistency	for * 2 Hour
Total Air Content (%)	...< 6

*at an ambient temperature of 20°C

REPABET

Extremely High Early-Strength Repair Concrete

REPABET; is a product intended for the repair of factory/plant flooring concrete, and concrete of road, apron and runway with heavy traffic, and shortens the time to repair and put into service.

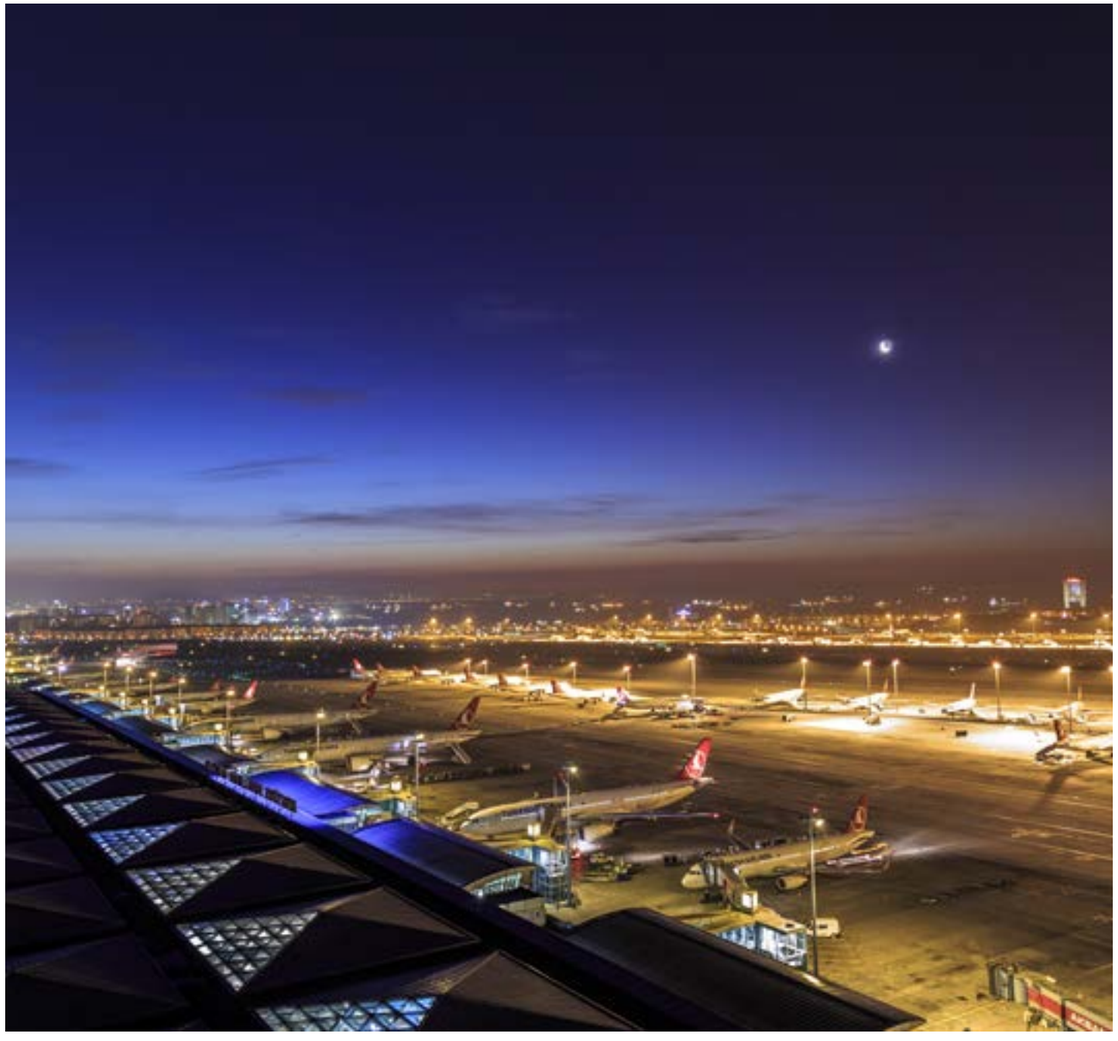
Concrete Components

The raw materials, which are proven to be qualified, selected and stocked in accordance with the national and international standards, are used in the production of **REPABET**.

Cement: Cement of type CEM I or CEM II are produced at OYAK Cimento plants.

Aggregate: It is obtained from the sources that are selected based on the analysis results, which show that such sources are suitable.

Chemical Admixtures: Specially-developed, new-generation super plasticizer chemical admixtures, which are perfectly suitable for with the cement used and which ensure early strength, are used.



Setting Time: REPABET® maintains its initial consistency and is workable. Its setting period is adjustable. It has high early compressive and bending strength.

Recommended Applications

- Repair of aprons and runways
- Repair of concrete roads
- Repair of industrial flooring
- Repair of any kind of flooring, which must be immediately put into service

Features

- Highly fluid
- Highly resistant to abrasion
- High early bending strength, controllable crack formation
- It is resistant to freeze- thaw impact and can be put into service within a short period of time.

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Advantages

- Much higher early strength than the standard concrete
- Much higher durability than the standard concrete

REPABET

Extremely High Early-Strength
Repair Concrete

Reference Projects

- Repair of Apron Concrete at Ataturk Airport

Water Impermeability Review	Depth of Water Penetration
Permeable Concrete	> 50 mm
Impermeable Concrete	< 50 mm
Impermeable in Harmful Environments	< 30 mm

Slump Consistency Class	S4 and S5
Maintains the Consistency	for * 1 Hour
Total Air Content	T_{500} , VS2
***Compressive Strength Improvement (MPa)**	$f_{c,m\ 8\ saat}$: 10-15 MPa
	$f_{c,m\ 10\ saat}$: 20-25 MPa
	$f_{c,m\ 12\ saat}$: 25-30 MPa
	$f_{c,m\ 24\ saat}$: 40-45 MPa

*at an ambient temperature of 20°C

WHITEBET

White Concrete

Produced using special white cement with minimum 85% whiteness and light-colored raw materials, WHITEBET is a special product that can be used safely thanks not only to its superior strength and durability performance but also to its aesthetic and decorative excellence.

The natural white color of **WHITEBET** differentiates it from gray concrete. This whiteness of the concrete is obtained from the color and purity of raw materials. As a major change in the source, form, purity and color of raw materials to be used in concrete may lead to significant differences in the appearance and color of the concrete, controlled supply and stock of the materials is very important. Cleaning of the equipment used in production, shipping and placement of concrete is of great importance. Produced in minimum consistency of S4 to obtain exposed concrete surfaces, concrete must be placed into exposed concrete forms prepared without segregation.

Concrete Components

Cement: White Cement of type CEM I and CEM II, produced specially by Adana Cimento, an OYAK Cimento plant, is used. Production of this cement with 85% whiteness according to the CIE color scale is possible.

Aggregate: Specially-selected white aggregate is used.

Chemical Admixtures: Specially-developed, new-generation super plasticizer chemical admixtures, which are perfectly suitable for white cement and which do not damage the white color quality, are used.

Recommended Applications

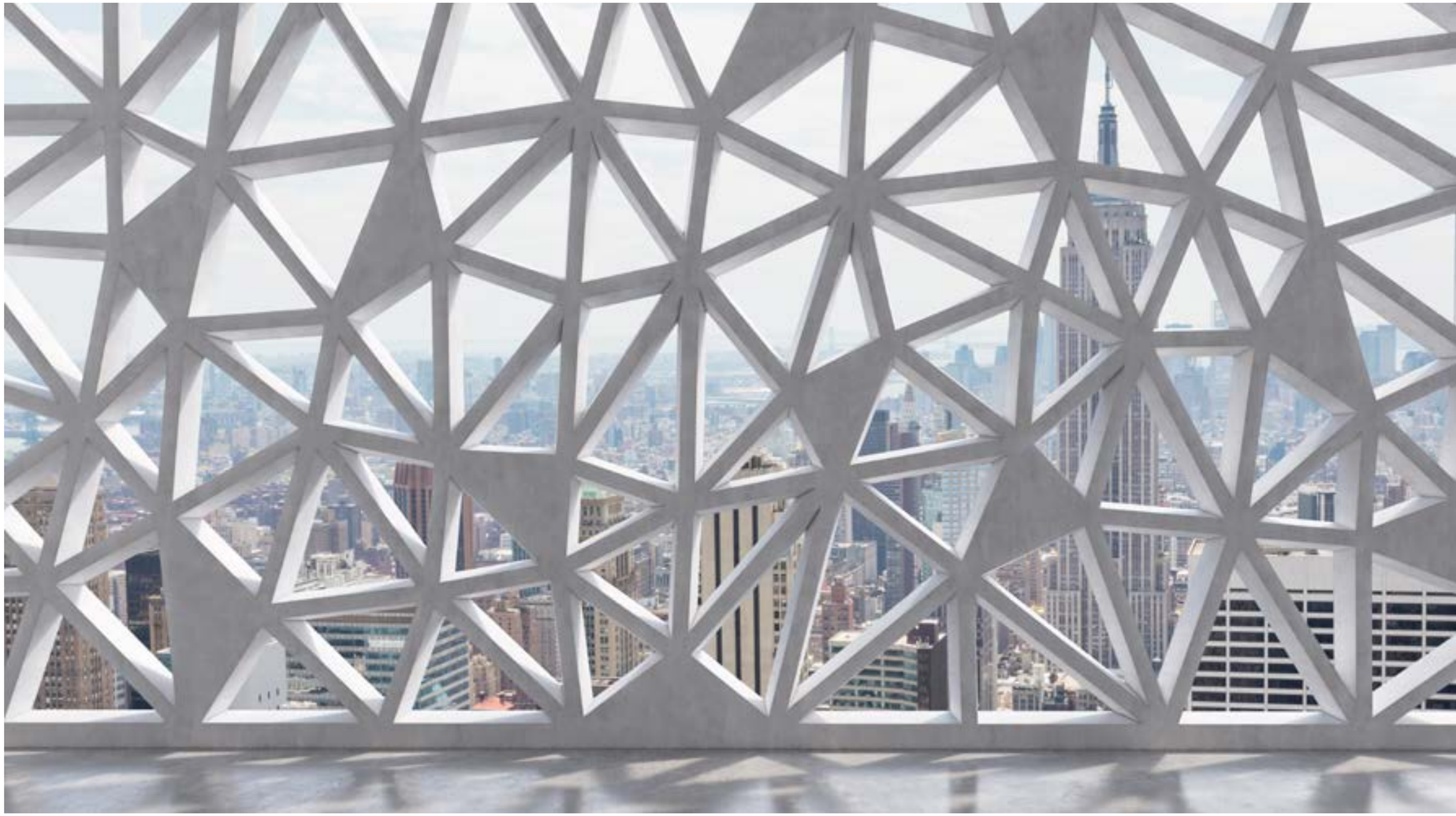
- All reinforced concrete building
- Decorative and precast building elements and wall panels
- Restoration projects

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

WHITEBET

White Concrete



Reference Projects

• New Service Building of the Municipality of Kahramanmaras

Compressive Strength Class	C8 - C35
Consistency Class	S3 and S4
Maintains the Consistency	for * 1 Hour
Total Air Content (%)	...< 3

*at an ambient temperature of 20°C

iZOBET

Concrete with Sound and Heat Insulation

İZOBET; is a lightweight concrete with a low coefficient of heat and sound conductivity that can be used in different applications. Depending on the environment and need, the unit volume weight can range between 800 < .. < 2000 kg/m³.

Concrete Components

Cement: Cement, which is produced at OYAK Cimento plants and which is suitable for the needs, is used.

Aggregate: Aggregates such as specially-selected pumice, expanded perlite etc. and synthetic, light aggregates can be used..

Chemical Admixtures: New-generation super plasticizer and air-entraining chemical admixtures are used.

Recommended Applications

- For protection of structural steel against fire and corrosion or as a coating for architectural purposes
- Heat insulation of roofs
- Insulating water pipes
- Construction of partition walls and panel walls in frame construction
- General insulation of walls
- LEED-certified projects

Precautions in Application

- For protection of structural steel against fire and corrosion or as a coating for architectural purposes
- Heat insulation of roofs
- Insulating water pipes
- Construction of partition walls and panel walls in frame construction
- General insulation of walls
- LEED-certified projects

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

iZOBET

Advantages

Advantages

- A relatively low coefficient of thermal conductivity
- Long spans can be covered easily thanks to the reduced constant load
- Optimized total construction cost thanks to the reduced constant load
- It offers a significant cost advantage in the design of loads transmitted to the foundations, particularly in high-rise buildings.
- Use of lightweight concrete can make it possible to resume architectural designs that have been discontinued due to overload.
- Use of lightweight concrete for building floors, partitions and external walls in frame construction provides great cost savings.

Reference Projects

- Toros Tekfen Samsun Factory

Compressive Strength Class	C8 - C25
Consistency Class	S3 and S4
Maintains the Consistency	for * 1 Hour
Total Air Content (%)	...< 25

*at an ambient temperature of 20°C

DUALBET

Road Concrete

DUALBET, DUALBET is a special road concrete product, which has been designed to allow for application with a concrete/asphalt finisher in line with the needs of public institutions and private sector.

Concrete Components

The raw materials, which are proven to be qualified, selected and stocked in accordance with the national and international standards, are used in the production of **DUALBET**. Whole process, starting from the raw material production to concrete casting in the field, is kept under full control.

Cement: Cements of type CEM I, CEM II and CEM III can be used.

Aggregate: It is obtained from sources that are selected in accordance with the TS 706 EN 12620 standard.

Chemical Admixtures: Specially-developed, new-generation mineral and chemical admixtures, which are perfectly suitable for the binders and aggregates used, are used.

Recommended Applications

- FAll urban and non-urban roads
- Transportation areas inside plants/ factories and housing complexes
- Storage/warehouse areas
- Airports

Precautions in Application

- Concrete should be set in place properly.
- Cold joint formation should be avoided during casting.
- Appropriate protection measures should be taken depending on the weather conditions after casting.
- Appropriate protection against factors such as extreme cold, extreme heat and wind must be ensured for the concrete, and all kinds of measures should be taken against the risk of cracking.
- Concrete curing and maintenance conditions must be fulfilled.

Advantages

- Long structural life
- Affordable
- It can be put into service within 24 hours
- High durability
- High skidding resistance
- Easily visible at night
- Use of 100% domestic raw materials
- All-seasons application
- 100% recyclable

DUALBET

Road Concrete

Reference Projects

- OYAKPORT Project

Compressive Strength Class	C25 - C30
Consistency Class	S2
Maintains the Consistency	for * 30 minutes
Air Content (%)	2 - 6
D Max	25 mm

*at an ambient temperature of 20°C

POROZBET

Permeable Concrete

POROZBET, is a permeable concrete product, which has been designed so as to contain interconnected pores. which differentiate it from conventional concrete.

Concrete Components

The raw materials, which are proven to be qualified, selected and stocked in accordance with the national and international standards, are used in the production of **POROZBET**. Whole process, starting from the raw material production to concrete casting in the field, is kept under full control.

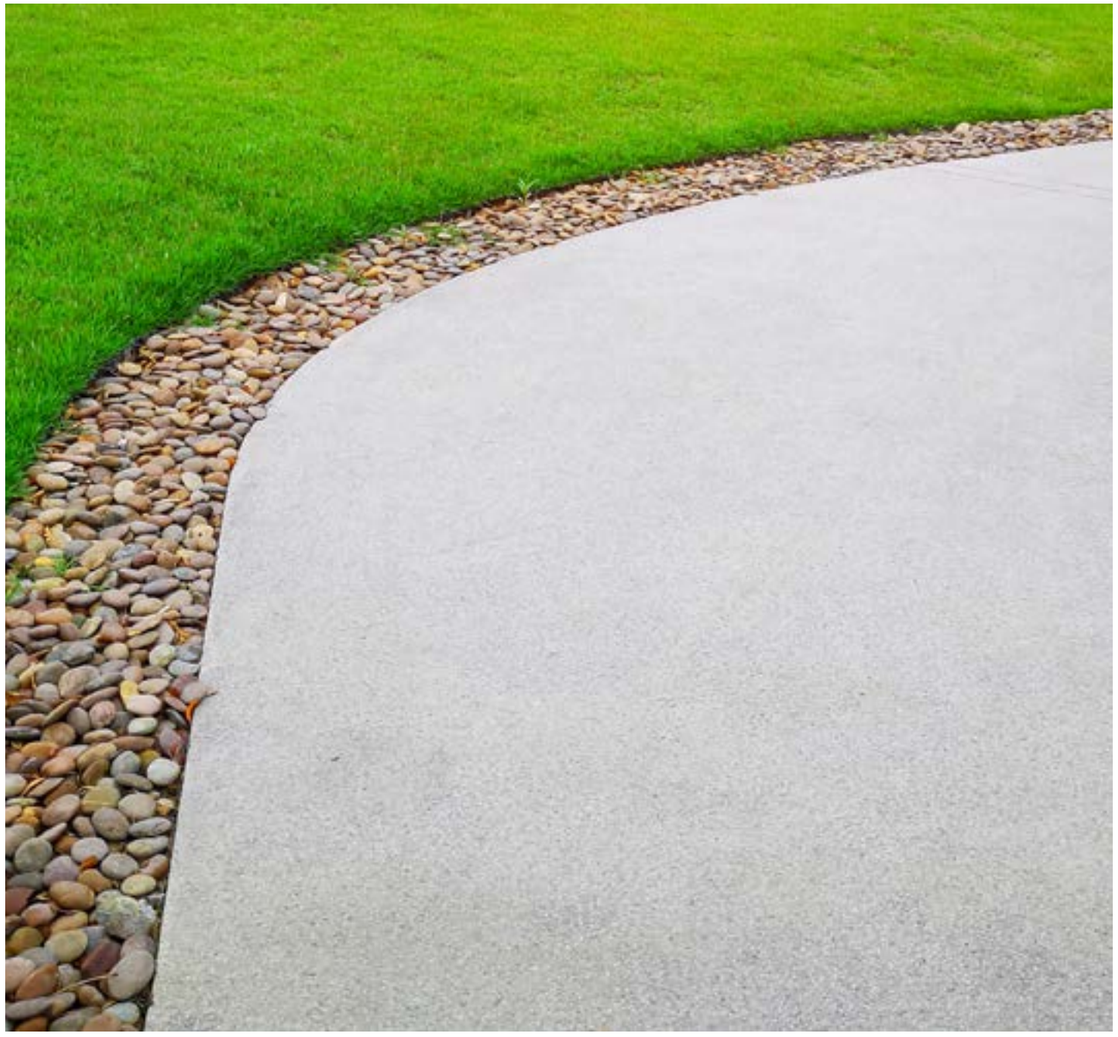
Cement: Cements of type CEM I, CEM II and CEM III can be used.

Aggregate: It is obtained from sources that are selected in accordance with the TS 706 EN 12620 standard.

Chemical Admixtures: Specially-developed, new-generation mineral and chemical admixtures, which are perfectly suitable for the binders and aggregates used, are used.

Recommended Applications

- Pavements and roads
- Parking lots
- Low water passages
- Rain gardens
- Slope stabilization
- Greenhouse
- Water parks and zoos



- Hydraulic structures
- Pavement drainage
- Wingwalls and seawalls
- Noise barriers
- Walls (including load-bearing)
- Sport complex infrastructure
- Landscaping and other decorative purposes.

*Due to low compressive strength of permeable concrete, it is currently not suitable for areas used by heavy vehicles.

Precautions in Application

- Unlike traditional concrete, Porozbet requires a special application.

Advantages

- Groundwater renewal
- Control of surface contaminants
- Erosion Control
- Cost advantage over other rainwater management systems
- Urban heat island effect
- It accelerates snow melting
- It can be used as an irrigation system
- It allows for more wooded areas
- It creates a non-sloping surface
- Reduced night lighting
- Recognized by green building certification systems
- Use of local materials

POROZBET

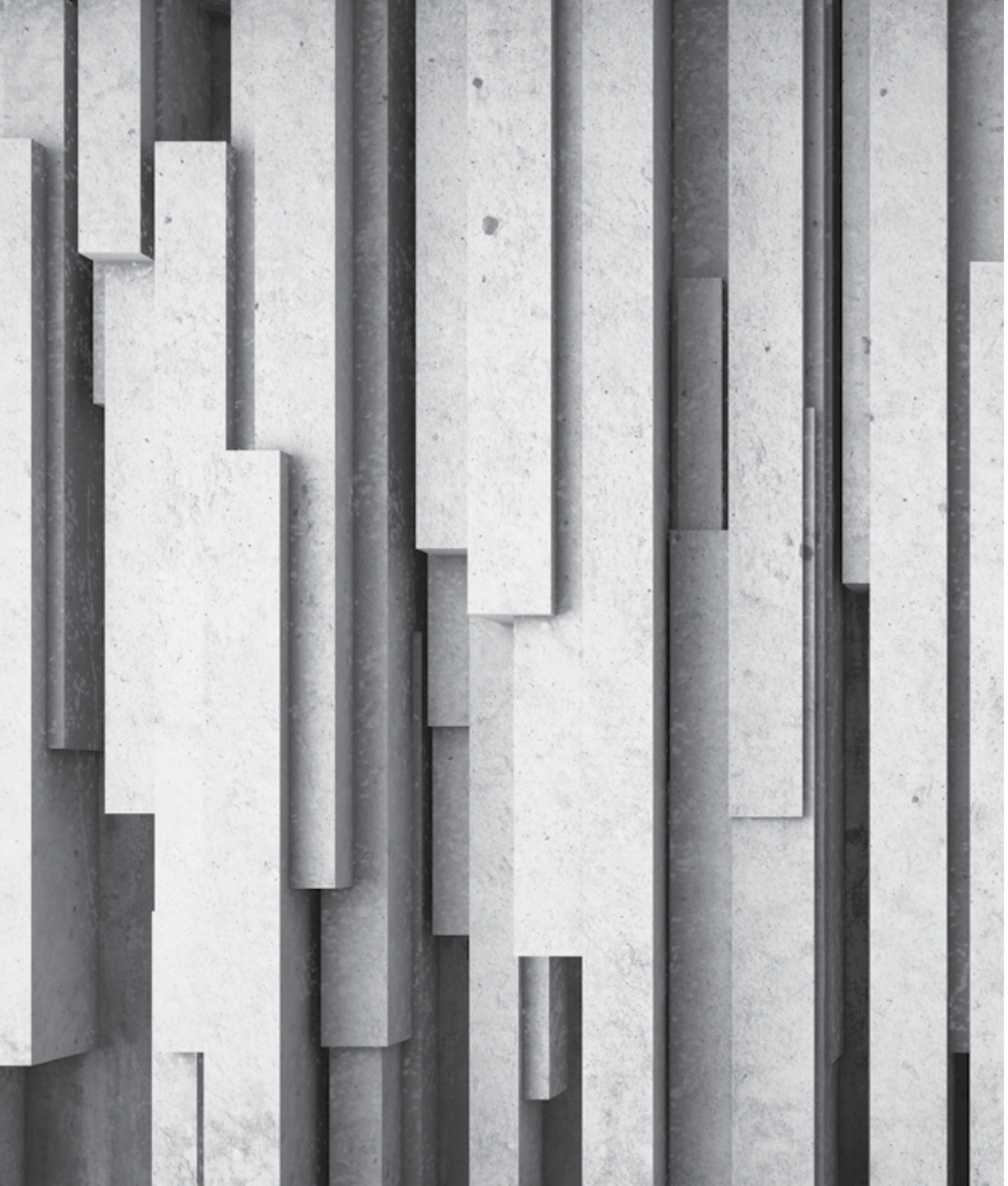
Permeable Concrete

Reference Projects

- Rize Salarha Tunnel Sideways
- Rize Pehlivantasi Road Construction Sideways
- Walkways of the Botanic Garden inside the Ministry of Environment

Compressive Strength Class	C16 - 20
Maintains the Consistency	for * 45 minutes
Air Content (%)	15 - 25
Aggregate Particle Class	12 mm - 25 mm

*at an ambient temperature of 20°C



REFERENCES


Bornova Folkart


Northern Marmara Highway


Deriner Dam


Tripoli Port Project


Pozanti Highway Construction


Aviation Maintenance, Repair And Modification Center for Sabiha Gokcen Airport

Concrete Projects (A-Z)

- 42 Maslak
- Adana Wastewater Treatment Plants
- Adana Integrated Healthcare Campus
- Adana Drinking Water Treatment Plants
- Adm Airport, New Terminal and Runway for International Flights
- Afsin Elbistan Thermal Power Plant
- Ankara-Pozanti Highway
- Antalya Lara Hill Villas
- Arista Bomonti Business
- Atasancak Agricultural Enterprise
- Avrasya Rubber-Tyred Vehicle Passage Project
- Baku-Tbilisi-Ceyhan Crude Oil Pipeline
- Municipality Service Building Construction Project
- Concrete Roads
- Bilkent Integrated Healthcare Campus
- Bornova Folkart Life
- Bursa Wastewater Treatment Plants
- Stage II Project of Greater Istanbul Drinking Water
- Buyukhanli Residence
- Camlica Mosque
- Camlica Tunnel
- Cataldere HEPP Project
- Cukurova Regional Airport
- Building of Presidential Symphony Orchestra
- CZK Farmers Complex in Zincirlikuyu
- Cultural Center for the Municipality of Denizli
- Bus Terminal for the Municipality of Denizli
- Stage 2 of TOKI project with 582 Houses in Kurudere, Denizli
- Denizli Sumerpark Shopping Mall
- Denizli Teraspark Shopping Mall
- Divan Istanbul Asya Hotel Construction
- Emaar Square
- Enova Berkman HEPP Project
- Enova Oskan HEPP Project
- Fenerbahce Sukru Saracoglu Stadium
- Fethiye Murt River Improvement
- Gaziantep Integrated Healthcare Campus

- Project on Construction of Terminal Building for Domestic and International Flights at Hatay Airport
- Hilton Dalaman Sarigerme Resort&Spa
- Incirli HEPP Project
- Isdemir A.S. Modernization and Transformation Investments Project
- Iskenderun Sugozu Thermal Power Plant
- Istanbul Anatolian Side Courthouse
- Izmir Yenisakran Penal Institution Campus
- Kadıkoy-Kartal Subway Project
- Kocaeli Disaster Coordination Center Project
- Korfez Kent
- Kusadasi Efes Congress Center
- Northern Marmara Highway Project
- Manisa City Hospital
- Marmaray
- Mersin Sea Platform Project
- Mimar Sinan Mosque
- Odemis State Hospital
- Optimum Shopping Mall
- Osmangazi Bridge
- Oyakkent Ikitelli Project
- Spine Tower
- Building for the Council of State of Republic of Türkiye
- Service Building for the Ministry of Food, Agriculture and Livestock of the Republic of Türkiye
- Service Building for the Ministry of Customs and Trade of The Republic Of Türkiye
- Tarsu Shopping Mall
- Tasucu Agalar Port
- Terminal for Domestic and International Flights and Parking Lot of TAV, Esenboga Airport
- Service Building for TBMM (Grand National Assembly of Türkiye)
- Tepe Prime
- The Istanbul Veliefendi
- Tire State Hospital
- Trakya Cam Sanayi Mersin Float Plants
- Vodafone Arena BJK Stadium
- 7 Tepe 7 Tunel

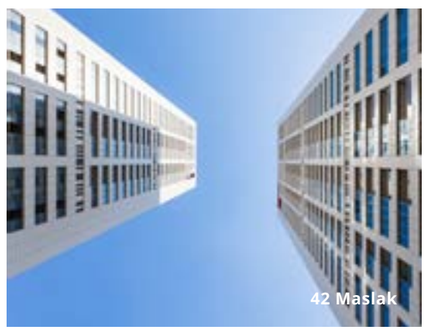

Aliaga Star Refinery and Port Project


Karakuz HEPP


Viaport Marin


Kadikoy-Kartal Subway Line


Building of Presidential Symphony Orchestra


42 Maslak

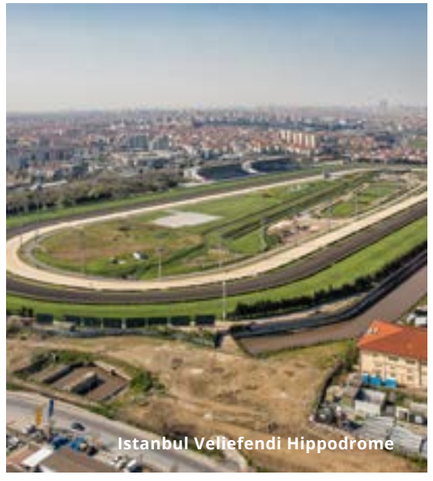
Concrete Projects (A-Z)

• • 42 Maslak
• Adm Airport New Terminal and Runway for International Flights
• Aksa Enerji Goynuk Thermal Power Plant Project
• Aliaga Star Refinery and Port Project
• Antalya Lara Hill Villas
• Artvin Dam and HEPP Project
• Atasancak Agricultural Enterprise
• Ayvali Dam and HEPP Project
• Batman Creek Improvement
• Bornova Folkart Time Life Center Construction
• Catalagzi Thermal Power Plant Project
• Stage 2 of TOKI project with 582 Houses in Kurudere, Denizli
• Denizli Sumerpark Shopping Mall
• Denizli Teraspark Shopping Mall
• Deriner Dam and HEPP Plants
• Construction of Stadium with a Capacity of 33.000 in Diyarbakir
• Diyarbakir Ambar Dam
• Diyarbakir Airport
• DSI (Directorate General of State Hydraulic Works), 15th Region Underground Water (UGW) Feeding Reservoirs
• Duzce-Akcakoca-Eregli Double-Highway Project
• Eglence I-II HEPP
• Ermenek Dam
• Evora Istanbul
• EvoraPark Denizli Housing Project
• Feke I HEPP
• Fethiye Murt River Improvement
• Gokkaya HEPP
• Goktas HEPP
• Leakage Prevention Set for Gordes Dam
• Gumusova-Gerede Highway
• Hasankeyf Bridges
• Hatay New Museum Construction
• Hilton Dalaman Sarigerme Resort&Spa
• Himmetli I-II Dam
• Imamoglu Irrıgation Delivery Canal
• Is Bankasi Cinarli Bahce Housing Project
• Izmir Yenisakran Penal Institution Campus
• Kadıkoy-Kartal Subway Line
• Black Sea Coastal Road
• Karakuz HEPP
• Kavsakbendi Dam
• Kolin Thermal Power Plant with a capacity of 510 MW
• Kopru HEPP Project
• Koprubasi Dam and HEPP Project
• Construction of Phase 3 of Stage 1 Project on Kralkizi Dicle Cazibe Main Irrigation Channel
• Construction of Phase 4 of Stage 1 Project on Kralkizi Dicle Cazibe Main Irrigation Channel
• Kusadasi Efes Congress Center
• Manisa Training and Research Hospital with 558 Beds
• Mardin Dargecit Ilisu Dam
• Mardin Airport Runway Expansion
• Mardin TOKİ
• MMK Metalurji SAN. ve Liman Isletmeciligi A.S.
• Muratli Dam and HEPP Plants
• Nefise Akcelik Tunnel
• Nigde-Kemerhisar Highway Construction
• Odemis State Hospital
• Pozanti Highway Construction
• Ronesans Izmir Optimum Shopping Mall
• Ronesans Karsiyaka Shopping Mall Project
• Aviation Maintenance, Repair And Modification Center for Sabiha Gokcen Airport
• Sayan HEPP
• Sinpas Denizli Aquacity Housing Project
• Sirnak Dam
• Sirnak Airport
• Sirnak-Silopi Dam
• Sirnak-Silopi Thermal Power Plant
• Sogutsen Kursunlu Granite Factory
• Spine Tower Istanbul
• Tefen Regulator and HEPP Project
• The Istanbul Veliefendi
• Tire State Hospital with 200 Beds
• Tripoli Port Project
• Tupras Fuel Oil Transformation
• Turkerler Insaat Mahall Project
• Uskudar-Umraniye-Cekmekoy Subway
• VIA Port Marin
• YP I YP II Irrigation Channel Project
• Yunus Emre Thermal Power Plant Project


Ermenek Dam


Camlica Tunnel


Uskudar-Umraniye-Cekmekoy Subway


Istanbul Veliefendi Hippodrome


Black Sea Coastal Road


Baku-Tbilisi-Ceyhan Crude Oil Pipeline


Sirnak Airport

Terminal Building for Domestic and International Flights at Hatay Airport


Mardin Airport Runway Expansion

www.oyakcimento.com
www.oyakbeton.com.tr