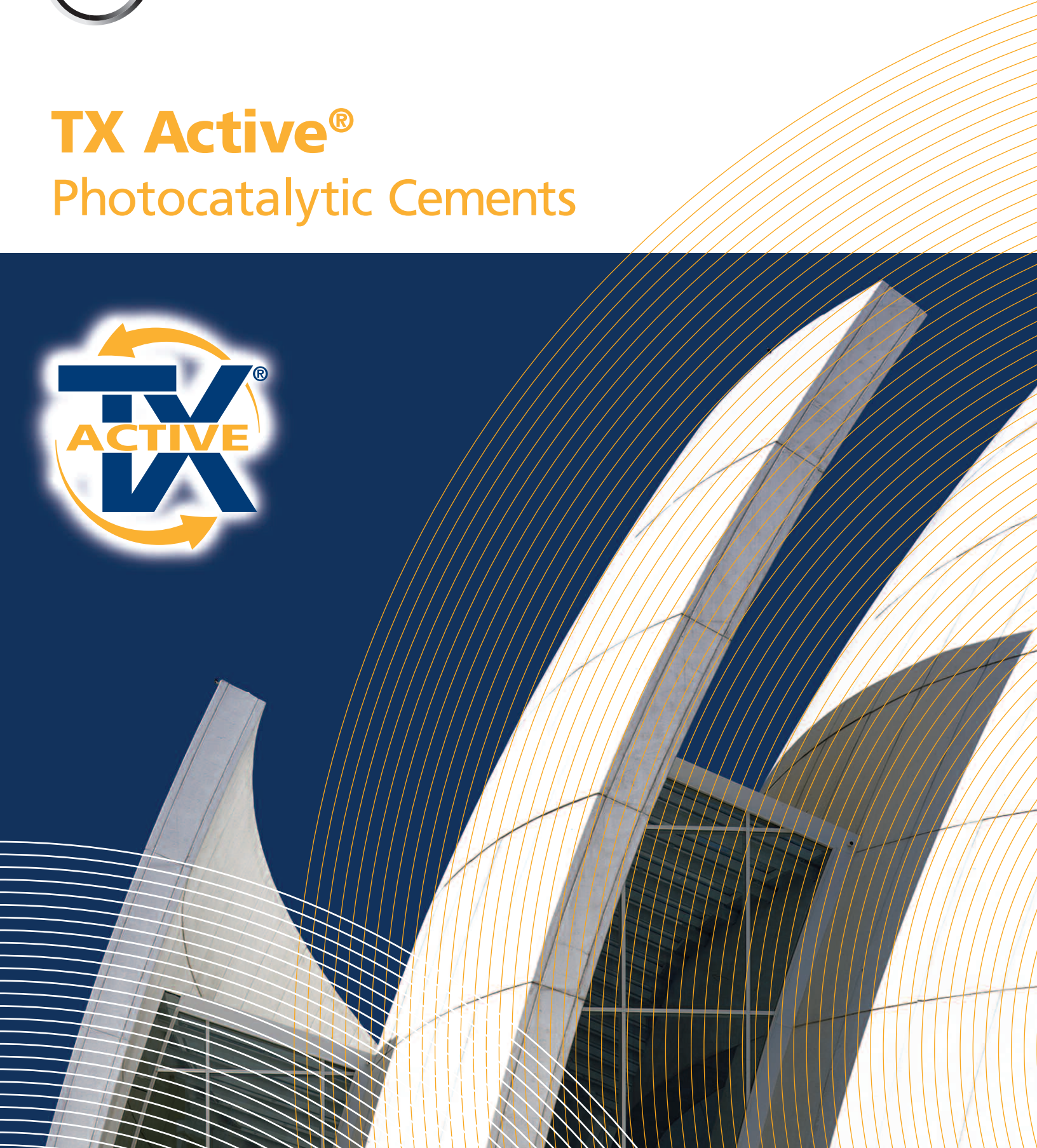




Essroc
Italcementi Group

TX Active[®] Photocatalytic Cements



Photocatalysis: The Power of Light

Photocatalysis is a natural phenomenon in which a substance known as a photocatalyst uses light to expedite the rate of a natural oxidation process.

Using light energy, photocatalysts can induce the formation of strong oxidizing reagents which decompose some organic and inorganic substances in the atmosphere by oxidation.

Photocatalysis is therefore an accelerator of oxidation processes that already exist in nature. It promotes faster decomposition of pollutants and prevents them from accumulating.

For over a decade, photocatalysis has been applied to various materials—glass, ceramic, cementitious binders—to obtain a “self-cleaning” effect.

Ever-increasing air pollution affecting urban areas has recently compelled researchers to take advantage of photocatalytic properties to abate the noxious substances that are contaminating the environment.



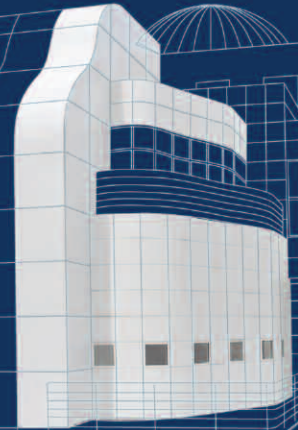
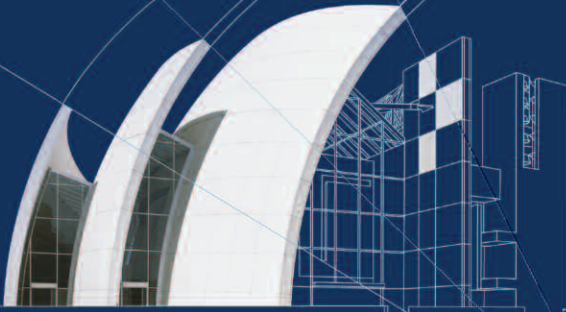
Introducing the Photocatalytic City: A Vision of the Environmental Future.



(1) CO, VOCs (Benzene, Toluene, etc.), Methyl Mercaptan (gas), Organic Chloronates, Aromatic Polycondensates, Acetaldehyde Formaldehyde (2) Nox SO_x NH₃ (gas), CO



Arca®: Architecture In A New Light

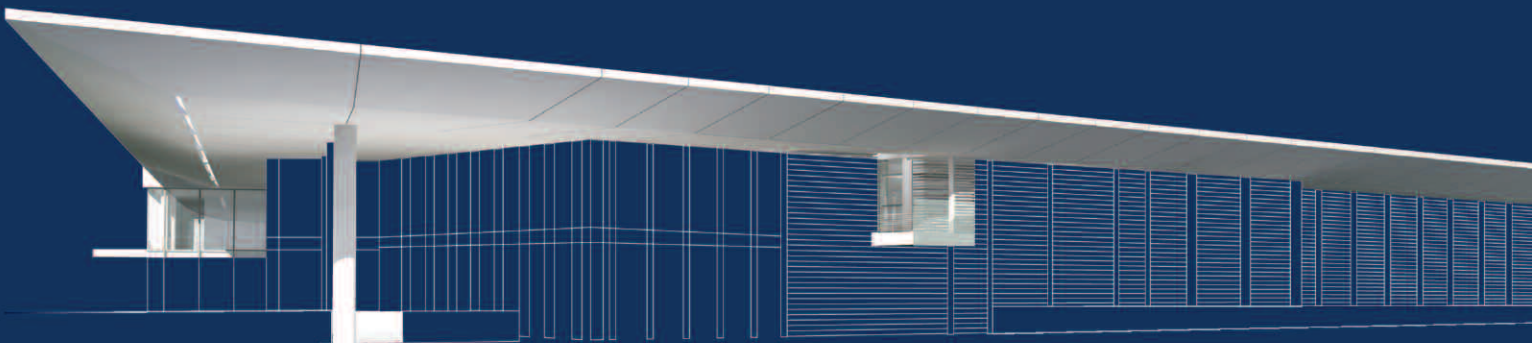


TX Arca® cement was developed in 1996 to achieve the strict design specifications demanded by Richard Meier for his **Dives in Misericordia** Church project in Rome: purity of white, eye-opening brilliance and the preservation of these final aesthetic qualities throughout the ensuing decades.

As the technical sponsor of this global landmark, Italcementi succeeded in meeting all the architect's requirements by using our white, photocatalytic cement.

Since then, **TX Arca®** has been the cement of choice for many prestigious architectural works; projects in which the quality of the building materials and their final appearance are equally important in achieving the original architectural vision.

In addition to ensuring the same physical and mechanical properties of traditional concrete, white concrete made with **TX Arca®** cement offers extraordinary brilliance and "self-cleaning" properties so that the original beauty is retained for years.





Aria®: Preserve the Environment

The **TX Aria®** Environmental Line provides a comprehensive range of cement products for formulating into all varieties of mortars, stuccos, cementitious veneers and many other concrete end uses.

TX Aria® imparts into these materials photocatalytic properties enabling them to abate noxious substances produced by human activities such as industry, transport and residential heating systems.

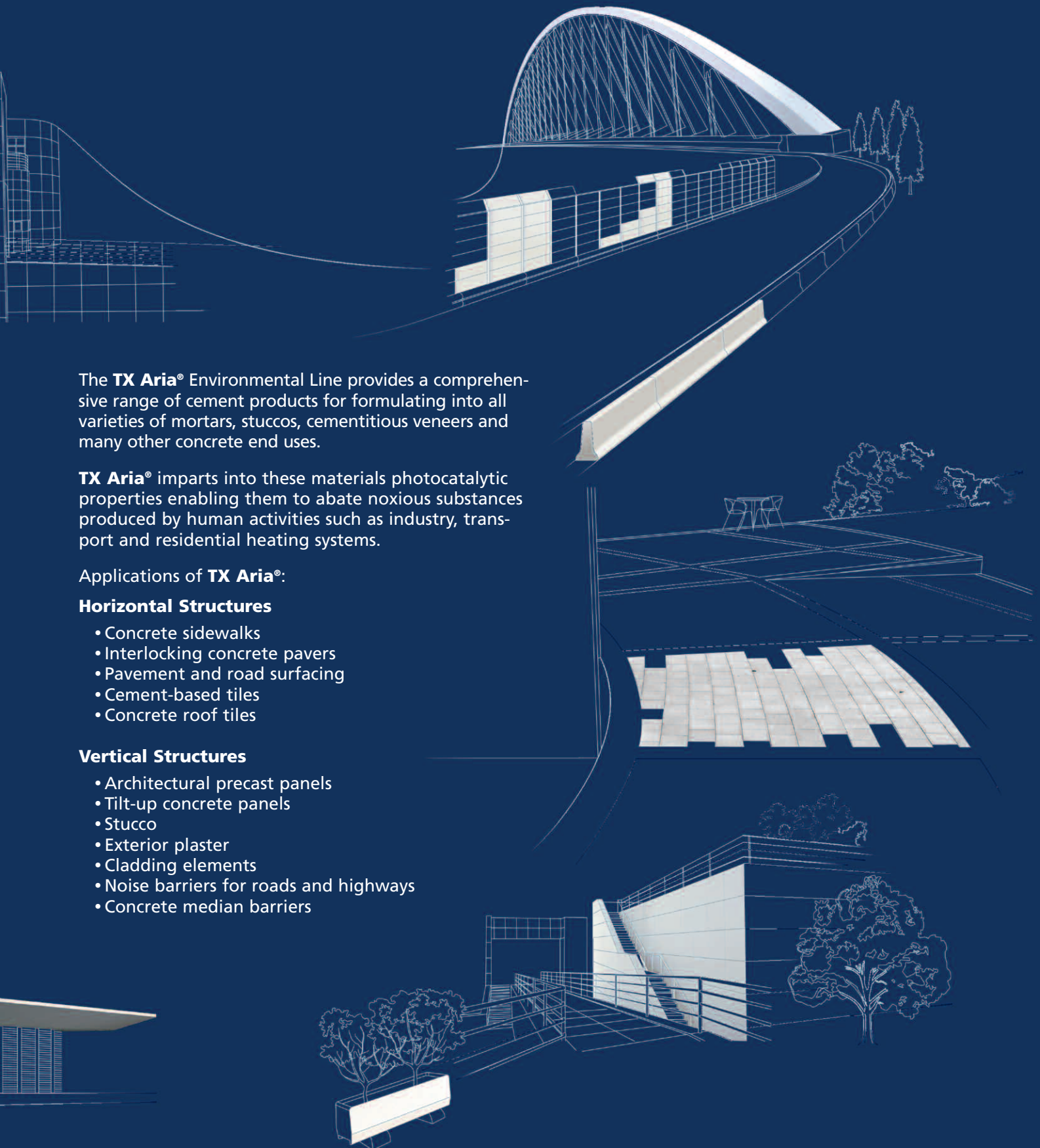
Applications of **TX Aria®**:

Horizontal Structures

- Concrete sidewalks
- Interlocking concrete pavers
- Pavement and road surfacing
- Cement-based tiles
- Concrete roof tiles

Vertical Structures

- Architectural precast panels
- Tilt-up concrete panels
- Stucco
- Exterior plaster
- Cladding elements
- Noise barriers for roads and highways
- Concrete median barriers



TX Active: Photocatalytic Principle

For over a decade, the Essroc Italcementi Group's Technical Center (CTG) has been deeply involved in studying photocatalysis applied to cementitious materials. Among the findings are that cementitious materials represent the ideal solution for spreading photocatalysts widely and evenly over both the horizontal and vertical surfaces of architectural and structural elements.

TX Active was used for the first time in 1996 for the production of the precast panels that form the three graceful "sails" in the Roman landmark **Dives in Misericordia Church** designed by Richard Meier.

Since then, Italcementi's research, development and improvement of this type of cement has been relentless. Early photocatalytic cements were effective in keeping surfaces clean; the levels of photoactivity achievable with our new Environmental Line is such that it actually abates the organic and inorganic substances responsible for air pollution.



Arca®

Architectural Line

TX Arca® cement is specifically designed for the construction of prestigious architectural works.

The aesthetic qualities of the final concrete elements, regardless of whether they are prefabricated or cast on site, are dramatically enhanced and remain in excellent condition for years.

Micro-organisms, combined with the accumulation of fats, particulate matter and rain, are responsible for the gradual soiling and dulling of facades. The photocatalytic properties of **TX Arca®** work to keep surfaces clean with consistent brilliance of appearance.



Aria®

Environmental Line

TX Aria® is an application-specific range of cement products, which can be formulated into a wide variety of construction materials.

When empowered with the photocatalytic properties of **TX Aria®**, concrete surfaces keep clean **and** effectively abate smog and many other urban pollutants.

Whether the applications are for horizontal structures, vertical structures or inside tunnels, **TX Aria®** can be an effective tool in fighting pollution while keeping concrete surfaces whiter and brighter.



Essroc Italcementi Group



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Cleaner Buildings, Cleaner Air

