1. Enamelled bench, Stockholm metro, Fridhemsplan Station
2. Stockholm metro, Danderyd Sjukhus Station
3. Stockholm metro, Hasselby Gård Station
4. Ilmarinen Office Building, Helsinki, Finland
5. LKAB Building, Kiruna, Sweden
6. An underpass in Täby, Sweden
7. An underpass, Jönköping, Sweden
8. An underpass in Täby, Sweden
CUSTOM DESIGNS. CREATIVE FREEDOM.
Temal SURFACE are vitreous enamelled architectural panels which can be made in various sizes and with personalised individual designs and prints. This means a complete freedom to use graphics and logos as well as a virtually unlimited colour range.

Creativity is intelligence having fun!

HERITAGE AT THE CUTTING EDGE
Temal panels are 100% European and produced at Temal´s enamelling factory in Järvenpää in Finland. We manufacture and enamel our architectural panels with great precision and a vast knowledge of enamelling that dates back to 1920. The personalised individual designs and prints on our panels are made in cooperation with our British partner Tiled Space using state-of-the-art printing technology.

A GENUINE LOVE FOR FUNCTIONAL AESTHETICS.
Temal is a family business based on a genuine love for functional aesthetics. We believe in the individual and in the freedom of creating modern, sustainable design and architecture with an innovative edge tailored to fit your demands.
“We shape our buildings; thereafter they shape us.”

- Winston Churchill
Temal SURFACE are vitreous enameled architectural panels that consist of a practically indestructible glass coating fused under high temperatures to a steel surface.

**Tough. Resistant. Versatile.**

The performance characteristics of vitreous enamel result in a material that will not rust, is resistant to chemical attack, abrasion and fire as well as being more durable than any other architectural cladding material.

**EXTREME DURABILITY**

Temal panels are extremely durable and need very little maintenance and cleaning. They will retain their original colour throughout the normal expected life of a building. Exposure to extreme weather conditions and coastal environments does not affect their performance or appearance.
We cannot hope to create a sustainable culture with any but sustainable souls.

SUSTAINABLE.

Vitreous enamel coating increases the lifespan of the original steel many times over reducing the need to produce replacements. Both the vitreous enamel steel and the vitreous enamel coating can be recycled and re-used to make vitreous enamel panels again.

ECONOMICAL.

Vitreous enamel has a lifespan at least 4 times that of most other cladding products. It is the most durable and longest lasting surface coating. It is also non fading and has the highest abrasive resistance making it not only cheaper but also maintains its appearance over its lifespan.

TECHNICAL PROPERTIES - STANDARDS

- Corrosion resistance approved quality ISO 2746
- Resistance to graffiti graffiti is easily removed ISO 2722
- Weather resistance in difficult conditions approved quality ISO 2722
- Incombustible fire rating A1 DIN 4102
- Impact resistance approved quality ISO 4532
- Acid resistance approved quality ISO 2742
- Resistance to temperature fluctuations -60°C / +450°C
I call architecture frozen music.

- Johann Wolfgang von Goethe
Vitreous enamelled steel is completely resistant to ultraviolet light and the original colours and surface finish will not deteriorate under continuous exposure to sunlight.

No fading – UV Light Resistance.

ABRASION RESISTANCE
Vitreous enamelled steel is extremely abrasion resistant withstandng cleaning and most abrasive materials without affecting the coating. It will meet scratch resistance to Mohs Scale 6.

HYGIENIC AND ANTI-BACTERIAL
Non porous finish that does not absorb bacteria or allergens. Non stick, high gloss surface is very easy to clean. High resistance to cleaning chemicals and high abrasive resistance withstanding very intense regular cleaning with no loss in performance qualities.

APPEARANCE
Vitreous enamelled steel is sterile, germ free, odourless and easy to clean. Combined with its other characteristics and a smooth colour fast surface, vitreous enamelled panels provide unmatched visual appearance.
The safety of the people shall be the highest law.

Marcus Tullius Cicero
FIRE PROOF

Vitreous enamelled steel is totally incombustible, will neither ignite nor burn and will withstand continuous temperatures of up to +400°C. Architectural vitreous enamelled panels will, depending on the design and the nature of the backing materials, provide fire ratings of a minimum of two hours.

IMPACT RESISTANCE

The physical strength of the steel, coating and panel backing enable vitreous enamelled panels to withstand deformation and damage due to impact, chipping and surface damage. This is provided they have been correctly designed, manufactured and installed.

THERMAL SHOCK RESISTANCE

Vitreous enamelled steel will withstand rapid cooling by water spray from +400°C to normal room temperatures over a 30 second period.

GRAFFITI RESISTANCE

Vitreous enamel panels have a non porous and solvent resistant surface making them ideal for use in public areas where unwanted graffiti, markers and sprayed paints can be easily removed.

CHEMICAL RESISTANCE

Vitreous enamelled steel is resistant to all organic solvents and has excellent resistance to atmospheric pollution, corrosion and degradation by the great majority of chemicals. It will not rust and is 100% water resistant.

SAFETY

The resistance of vitreous enamelled steel to impact and distortion under extreme temperatures provide further significant safety advantages in applications such as tunnels and claddings in public areas.
Practice does not make perfect. Only perfect practice makes perfect.

- Vince Lombardi
ENAMEL IS GLASSED STEEL

The secret of vitreous enamel architectural panels’ durability is in its composition. Enamel combines the strength of steel and the chemical durability of glass. Enamel is a ceramic coating which is baked onto the steel at a temperature of over 800°C. The most important component of enamel is quartz. As the melting point of quartz is very high (1620°C), the melting point is lowered by adding basic metal oxides as well as sodium- and potassium oxides to it. A good bonding of the enamel to the steel is ensured by adding nickel- and cobalt oxides to the ground-coat enamel. In this way, better mechanical, physical, optical and chemical properties are obtained than with other metal coating methods.

AN ENAMELLED SURFACE IS AS HARD AS QUARTZ (GLASS) AND VERY SCRATCH-RESISTANT

As measured on the Mohs scale, enamel comes right before gemstones in hardness:

- **Surface enamel**
- **Ground-coat enamel**
- **Oxidation- and bonding layer**
- **Steel plate**

NEW

MARBLE, GRANITE OR STONE ON VITREOUS ENAMEL PANELS

- light weight
- easy to mount
- carefree
- thermal shock resistance
Space is the breath of art.

- Frank Lloyd Wright
About Space

Täby Municipality in Stockholm has more than 50 underpasses and over half of these are used by children on their way to and from school. Underpasses are felt to be unsafe and unpleasant especially in the evenings. The strategy prioritizes the usage of vitreous enameled architectural panels primarily for these reasons: graffiti resistance, esthetical appearance enhancing colors, prints and design, sustainable, durable as well as the possibility to personalize.
Temal SURFACE panels are easy to mount
A mounting process at Jönköping Museum Underpass, Sweden.
DON’T LIMIT YOUR CHALLENGES,  
– but challenge your limits!

Temal is a family-owned company with two factories in Finland: an enamelling factory and a furniture factory. We are the leading manufacturer of bespoke furniture in 5 cm increments for bathrooms, kitchens and storage.
WHY CHOOSE TEMAL SURFACE?

- Individual Custom Designs.
- Heritage at the cutting edge: enamelling and state-of-the-art printing technology.
- Extreme Durability.
- Sustainability.
- Economical.
- Fire Proof.
- Graffiti Resistance.
- No fading - UV Light Resistance.
- Chemical Resistance.
- Abrasion Resistance.
- Impact Resistance.
- Thermal Shock Resistance.
- Safety.
- Hygienic and anti-bacterial.

VITREOUS ENAMELLED ARCHITECTURAL PANELS

Sustainable architecture – individual design.

Most of the photographs taken by Fredrik Ludvigsson • www.fredrikludvigsson.com

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