

MODERN STEEL COATING CO.

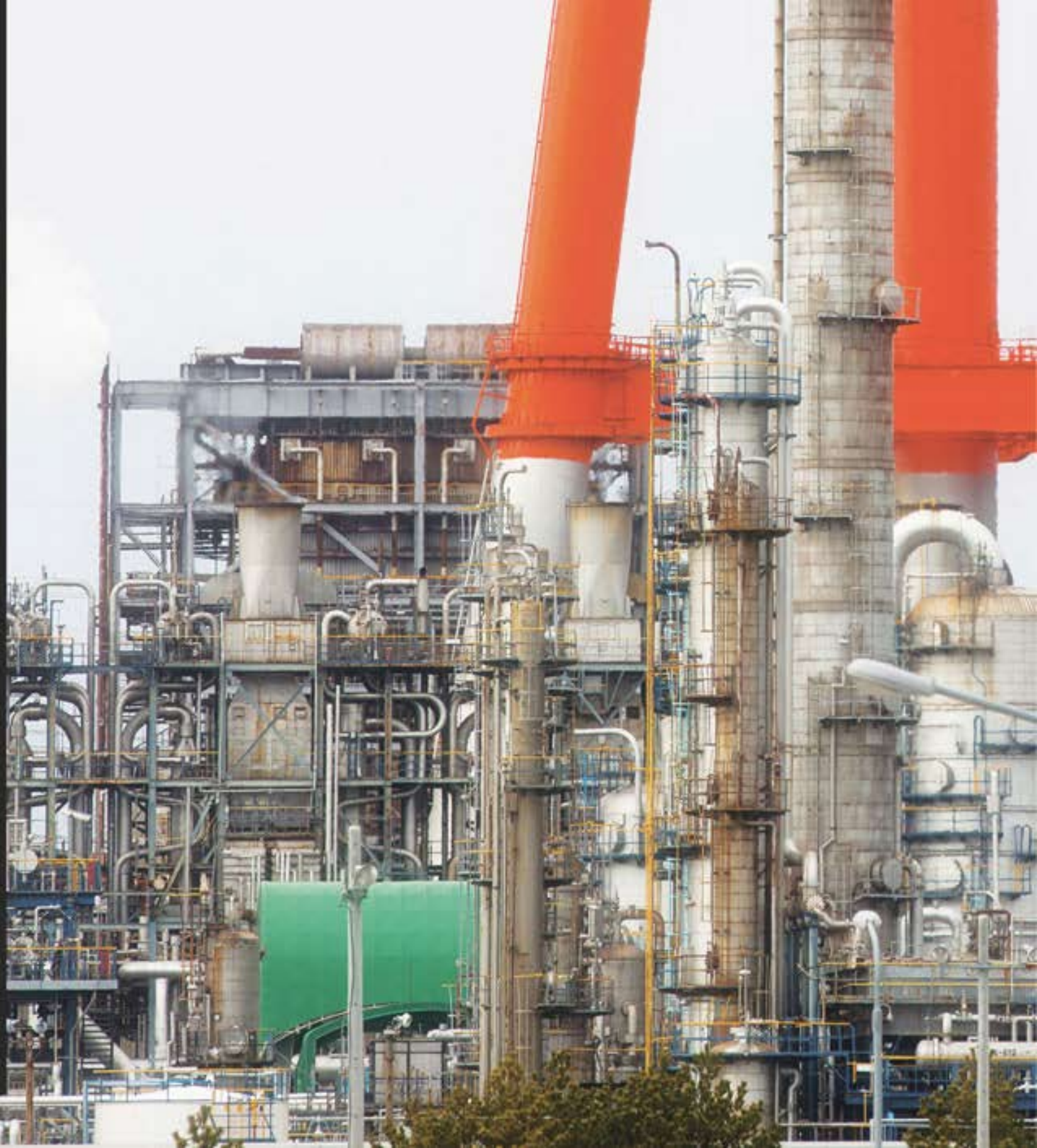
We protect your steel better,, and deliver on time

MSCC
Modern Steel Coating co.

WORD FROM OUR MANAGEMENT

It is estimated that 4% of world GDP is lost each year by corrosion in steel used worldwide. In the past years the demand in the Kingdom of Saudi Arabia for hot dip galvanizing has increase considerably. This is mainly attributed to both high ability of galvanizing to provide the best long-lasting corrosion protection for steel, and durability with less site damage during handling and chain lifting of the steel items. It also provides superior foundation for decorative top coat used as an architectural feature of building interiors and exteriors as well (the texture and colour of galvanized steel blends well with modern designs from glass and stainless steel). It provides relief from the concrete extensively used in modern building.

At Modern steel coating company MSCC we are committed to provide our customer with best quality consistently and provide it on time. To be able to deliver, we build a team of well qualified and experienced staff with HOT -Dip Galvanizing, and installed the best machines and equipment supplied from USA and Germany. Our layout design using closed loop monorail allows us to streamline the dipping process and enable us to do dip more at the same time.





WHAT WE OFFER

- Collection and delivery services on request
- Fast track delivery in 24 hours on request
- Superior Customer service, and technical assistance
- Spin galvanizing for small tool (fasteners bolts, nuts)
- Double dip up to 20 meters (with 14M long kettle)
- Vertical dipping up to 2.9 meter (with 3M depth kettle)
- ISO 9001 approved



WHAT IS GALVANIZING

Protecting steel is an essential factor in the economic utilization of steel in all applications. Every year rust and corrosion cause damage in steel and result in loss of several billion Riyals in buildings, plants, equipment, tools all over the Kingdom of Saudi Arabia.

Through the years companies used many corrosion prevention systems to protect its steel, like electroplating or coating with epoxy and any other type of protective paints. These systems can only provide a limited protection over a limited period of time. With time, coating will be compromised, from that point of time corrosion will begin spreading again beneath the protective coating film. Restoring the protection will require repeated treatments every time, resulting in higher risk of steel strength compromised and compounding costs over time for repeated inspection and treatment.

Hot dip galvanizing protects the steel surface against corrosion in two ways; it shield the base metal from atmosphere because it is more electronegative than iron, also the protective zinc layer will

seal the steel surface metallurgically from its environment. If the surface is damaged in any way the remaining zinc in surrounding galvanized area will maintain the protection by the cathodic (or sacrificial action). This means galvanizing steel will provides the best quality, lowest risk and lowest long-term costs (in many cases also the lowest initial costs), for any steel item shape or size, compared to any other form of corrosion control and prevention

Hot dip galvanizing is also environmentally friendly since it will increase the expected life span of the steel products for many years (over 70 years), and since both steel and zinc are fully recyclable at the end of their service life without the loss of any of their chemical or physical properties.



BENEFITS OF UTILIZING GALVANIZED STEEL

1. **Durable** Hot-dip galvanized steel delivers a maintenance-free corrosion protection for 75-100 years.
2. **Economical (maintenance cost)** Galvanizing requires no maintenance, the initial cost, of a bridge rail yard structure etc, is the final cost.
3. **Sustainable and Recyclable** Galvanizing steel lasts for many years, Zinc and steel are 100% recyclable without the loss of chemical or physical properties.
4. **Easy and practical;** full coating can be applied in just few hours, under a controlled conditions. The alloy layers of the coating are harder than the steel it protects and thicker at the corners
5. **Safe;** since the galvanizing process applies zinc on difficult to reach corners as for the inside of poles, towers, and handrail; places where corrosion usually begins. Additionally; it lowers the risk of compromising steel quality because of its durability. Galvanized reinforcing steel in concrete bridge decks corrodes slowly and in such microscopic form it does not cause spalling of concrete like epoxy coating.

HOW WE DO IT

Best Galvanizing results require the collaboration between designer- fabricator-Galvanizer from the beginning to the end of the project. This will provide time savings and cost reduction with the quality coating and protection of the steel. During the preparation items must first be clean (please refer to our website for more specific details on preparation of the fabricated items), so that it can be completely immersed in a series of pre-treatment baths to prepare the surface for galvanizing, and later will be submerged in a bath of molten zinc at 450degree.

Preparing also include making proper holes for hanging and proper draining the liquid zinc.

The hot dip galvanizing process consists of three distinct phases;

PRE TREATMENT

Galvanizing consists of separate stages:

- **INSPECTION**

Items are inspected to ensure they are safe & suitable to galvanize. This involves checking for adequate venting, clean from welding slag and for any sign of steel surface contamination with paint, grease, etc. as they will not be removed in the pre-treatment process and would cause the process to fail.

- **DEGREASING**

Steel is immersed in a degreasing solution which removes light oil contamination.

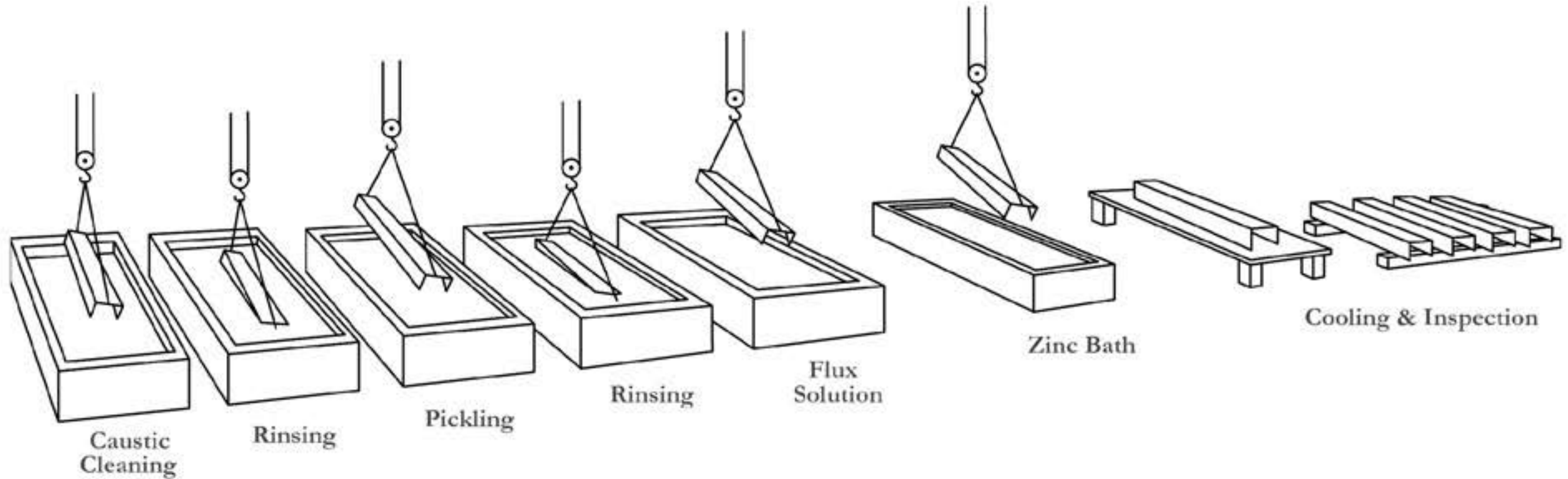
- **PICKLING**

Dipping in Acid tank will mill strips the steel surface to its original clean base steel.

- **FLUXING**

A flux solution is applied to the steel to clean from oxidization and assist with the galvanizing reaction.





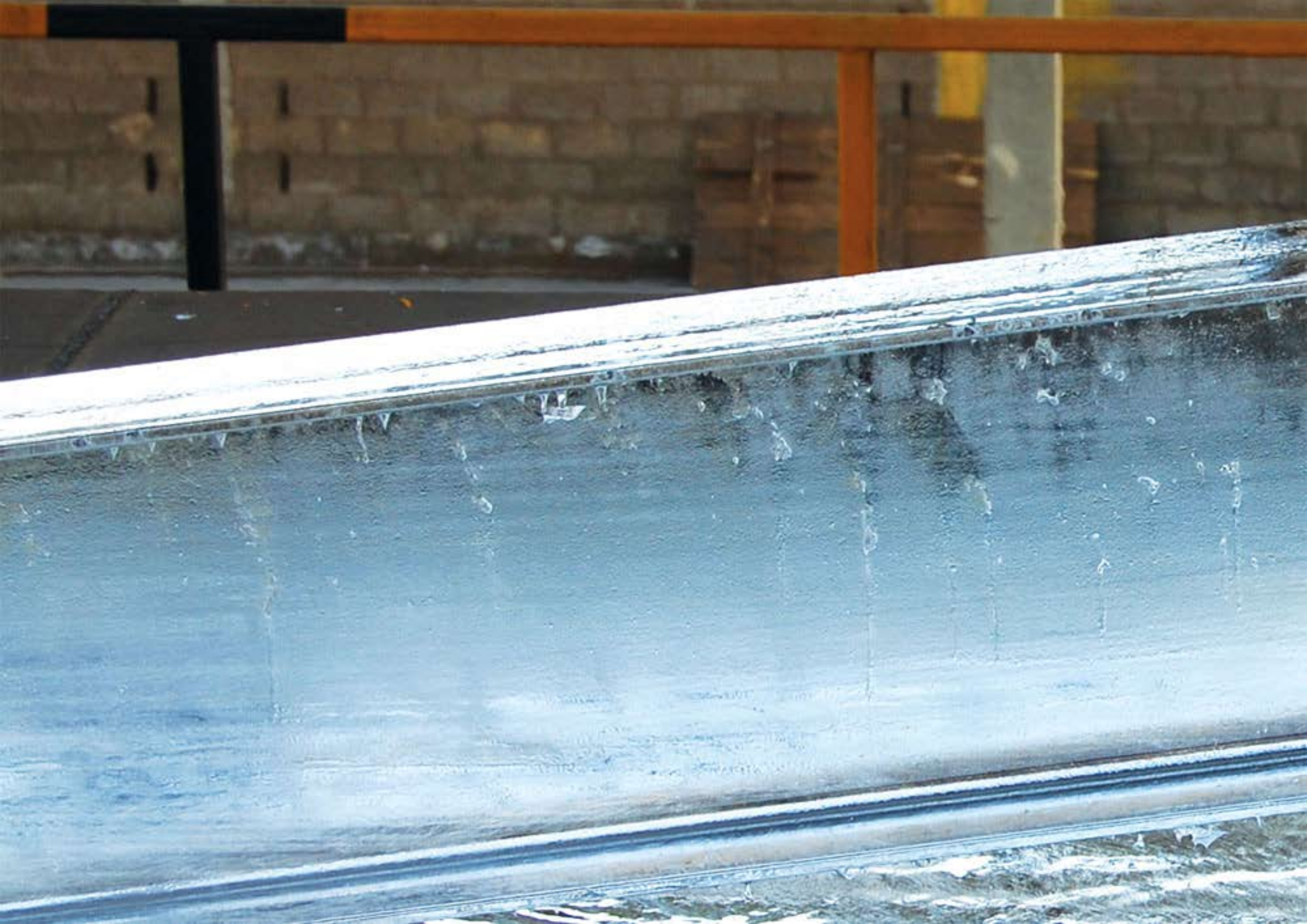
GALVANIZING

- Material is immersed in molten zinc at a temperature of around 450 degrees until the temperature of the work is the same as the Zinc. During this process the molten zinc reacts with the surface of the steel to form a series of zinc/iron alloys. These alloy layers protect steel from corrosion for years to come.
- We add Aluminum with the zinc kettle to improve the anti corrosion properties of the coating and give a good finishing
- Steel is removed from the kettle then usually transferred to a quench tank where it is cooled to allow handling.

POST TREATMENT

THIS WILL INCLUDE THE FINAL INSPECTION AND FINAL PREPARATION

- Preparation includes clearing item from excess zinc and bundling in the finish product area.
- **FINAL INSPECTION.**
 - visual inspection; steel surface should be free from bare spots, blisters lumpiness, ash inclusion, white rust, general roughness
 - coating thickness uniformity, this is usually tested using magnet thickness gage (non destructive test)
 - Adhesion of the zinc to the steel surface. This is usually performed using Pivoted hammer.





WHAT MAKES US SPECIAL

- a) Our kettle size is 13m long X 1.6m wide X 3m deep
- b) Ability to galvanize bolts and nuts using high speed spinning machine, which rid the steel from any excess zinc coating
- c) High velocity system used, this will ensure optimum and even heat transfer to all sides of kettle, which will result in standard thickness and uniformity of coating on all surface of the galvanized materials
- d) Continuous filter system from the flux tank, to maintain its property constantly and therefore guarantee same quality everytime
- e) Using monoroil system for dipping in Kettle which allow us to do more dipping per hour



QUALITY

Our quality control procedures, and certificate

MSCC is committed to achieving the highest quality; this is not only measured by achieving the required coating standards, but most importantly by our customers' satisfaction.

Quality starts from the early steps of design and fabrication

it also includes inspection of the materials to be galvanized. Our technical team personnel will need to insure

- Surface should be clear of welding slag, drops, paint or spray, dirt or oil or grease.
- Items are properly vented, especially assure that all cavities must be well ventilated to allow zinc flow in and out (it can increase the risk of explosion and or deformation of items)
- Items should have sufficient hols for hanging and draining of chemical materials and the molten zinc.
- Identify the chemical composition (mainly silicon content) for any special grade steel, so that we can apply proper procedures for proper coating (client can help by providing chemical analyses)

Constant Quality control

Attention to process control is vital to the quality. MSCC has a management system and procedures in place to ensure customers receive the best quality and consistently. The composition of the chemical tanks including the zinc in the kettle are regularly sampled and tested in our fully equipped in house laboratory, by a specialized staff. Adjustments are regularly made to maintain chemistry within the carefully defined boundaries.

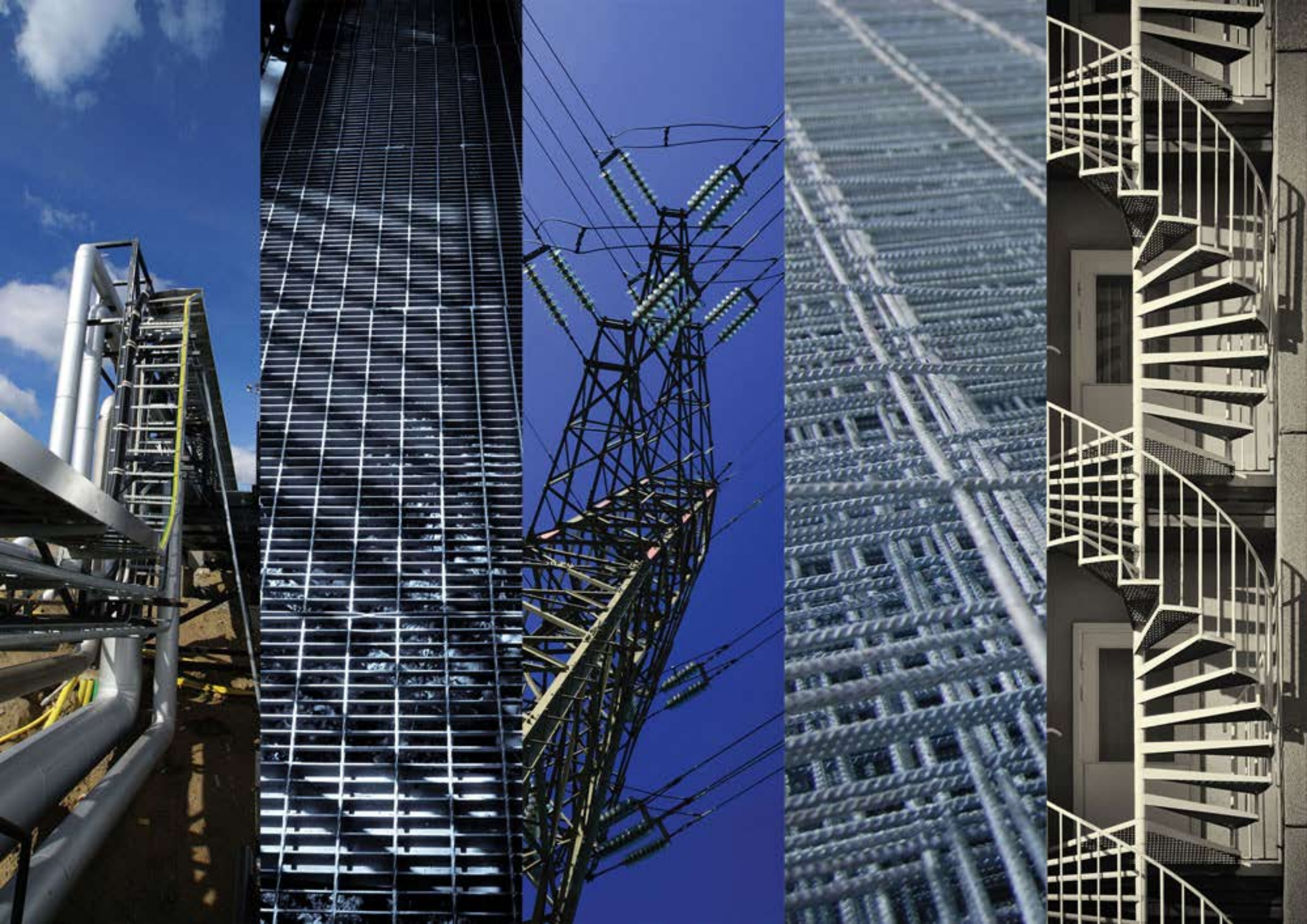
Certificates of Compliance

MSCC will issue a certificate to assure client that steel items galvanized has met specification for international quality standard requested, if client require specific thickness we can also comply with these specification.

Standards that govern the galvanizing process can be;

- American standards (ASTM) A123; A153/A153M
- British standards BS729; BS/EN/ISO 1461

For better presentation of holes and opening needed of items refer to our web site



APPLICATION

Hot dip galvanizing is especially useful for metal works and surfaces that are subject to wear and tear, such as used in **walkways, parking lots, ladder rungs, chains, handrails, pipes, lamp poles, Garden ornaments, gates and fences**, and **small components** like **fasteners bolts brockets**. In particular it is most useful in enabling structural works used in sheds and buildings to achieve outstanding toughness and resistance to corrosion. Galvanized wiremesh is ideal for concrete slaps.

1. It will provide years of resistance to corrosion for the **oil refineries and chemical processing plants**.
2. Hot dip galvanized **steel towers** are ideal for all communication, lighting and power transmission needs.
3. Hot dip galvanized component provide safe and maintenance free **remote stairs, walkways, pedestrian hand derails and safety barriers**
4. Resistance to all environmental and moister induced corrosion make Hot dip galvanizing cost effective in **wastewater facilities**
5. Reliance and ability to resist harsh weather effects make it ideal for all road applications include rail Guard for roads, road sings, traffic signals poles, road guard fences, and sand, animal crossing guards. **Bolts** and small tools
6. Hot Dip Galvanising is ideal for expansion joints.
7. Hot dip galvanizing will improve all **Metal framed building life cycle** and minimize maintenance costs required to preserve its appearance and durability.
8. Wire mesh will insure long life for all concrete work.





AL RASHID FASTENERS COMPANY

ARAB PAPERS MANUFACTURING
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