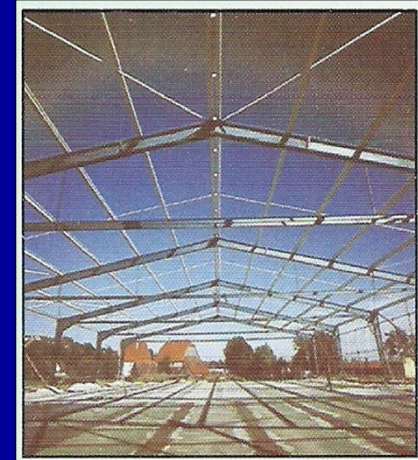


Hot Dip Galvanizing for Prefabs- Twelve Inherent Advantages

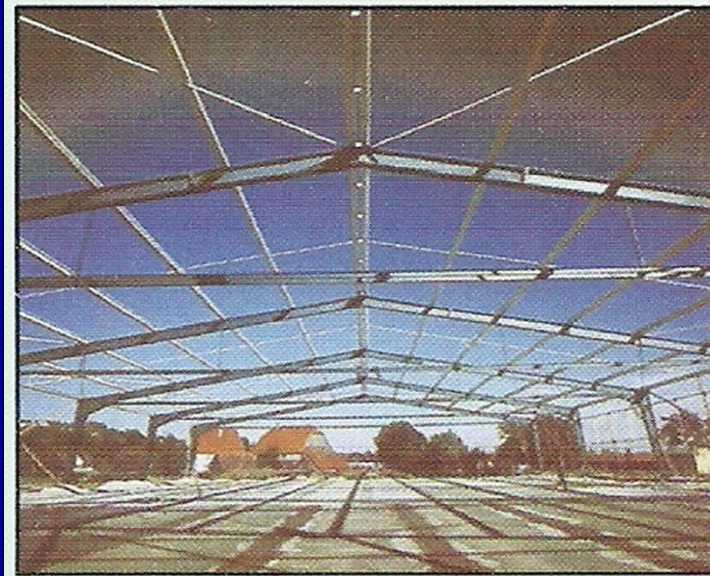
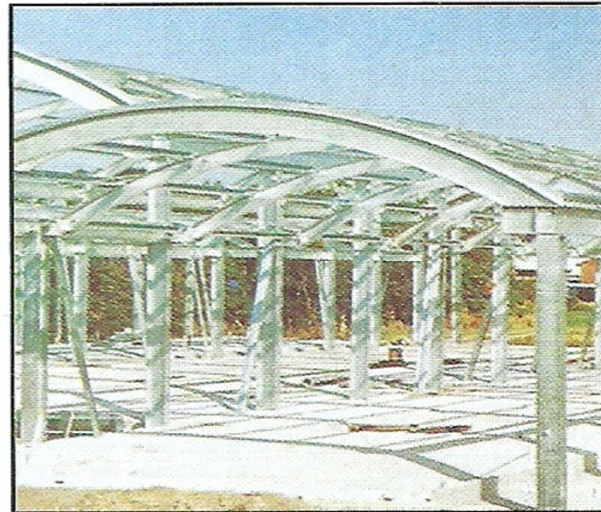


**IIM-Delhi Chapter
Seminar on Prefabs
IIC, 16 Aug 2017, New Delhi**

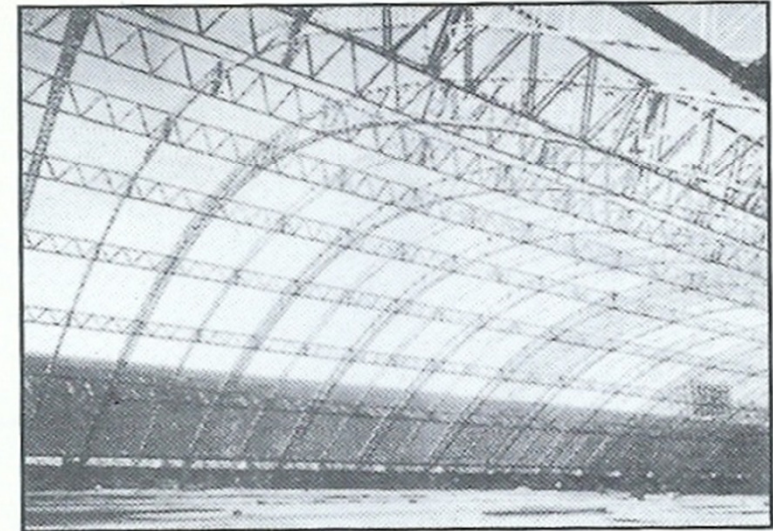
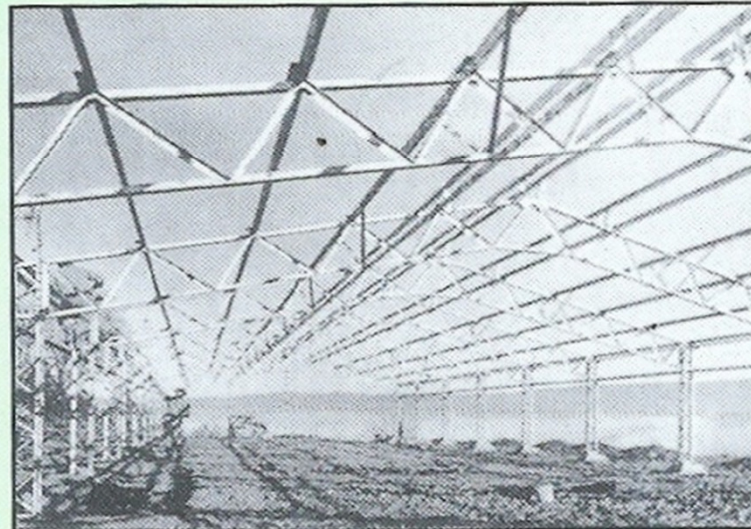
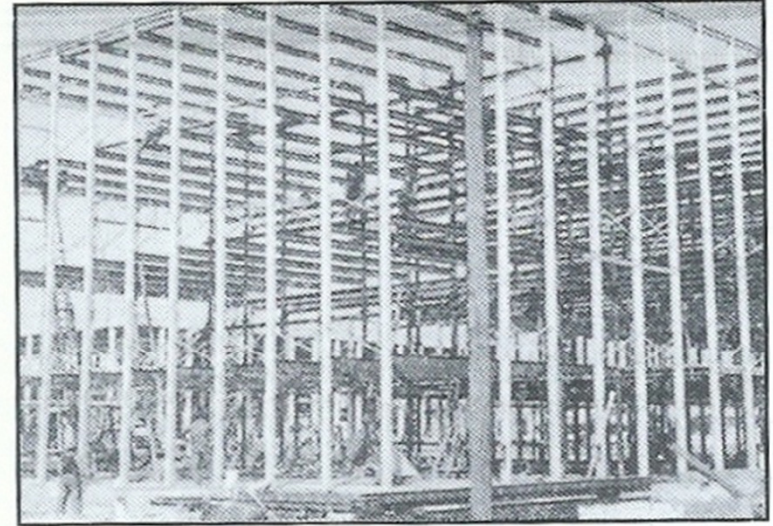
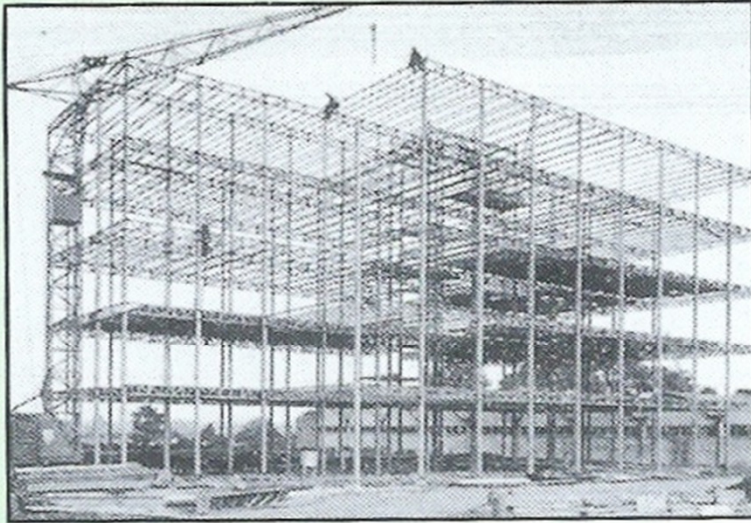


***L Pugazhenty
Past President, The Indian Institute of Metals &
Executive Director
India Lead Zinc Development Association***

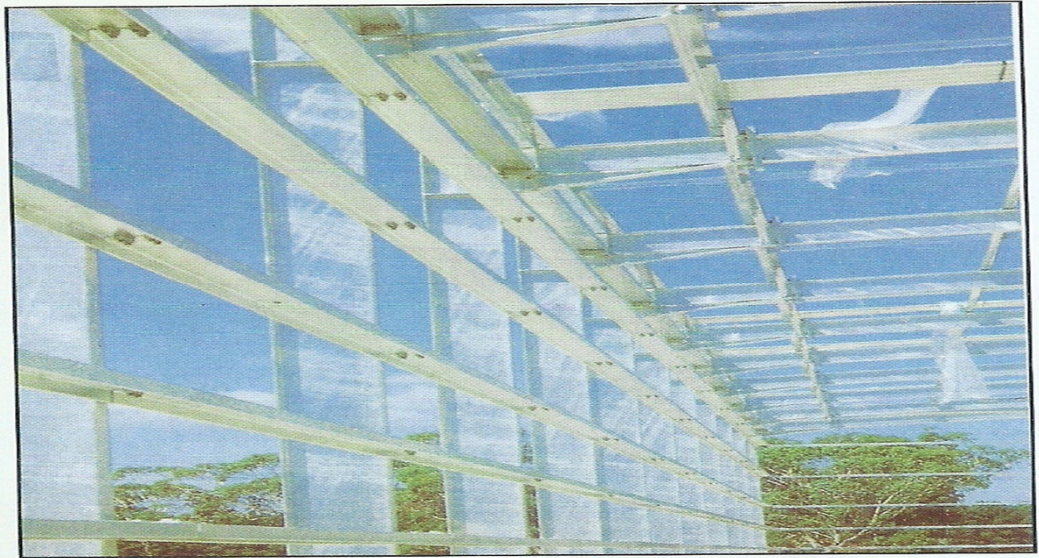
Galvanized Steel in Construction



Galvanized Steel in Construction



Galvanized Steel in Construction



Galvanized Steel Products



Zinc: Preferred Choice for Corrosion Prevention

ZINC:

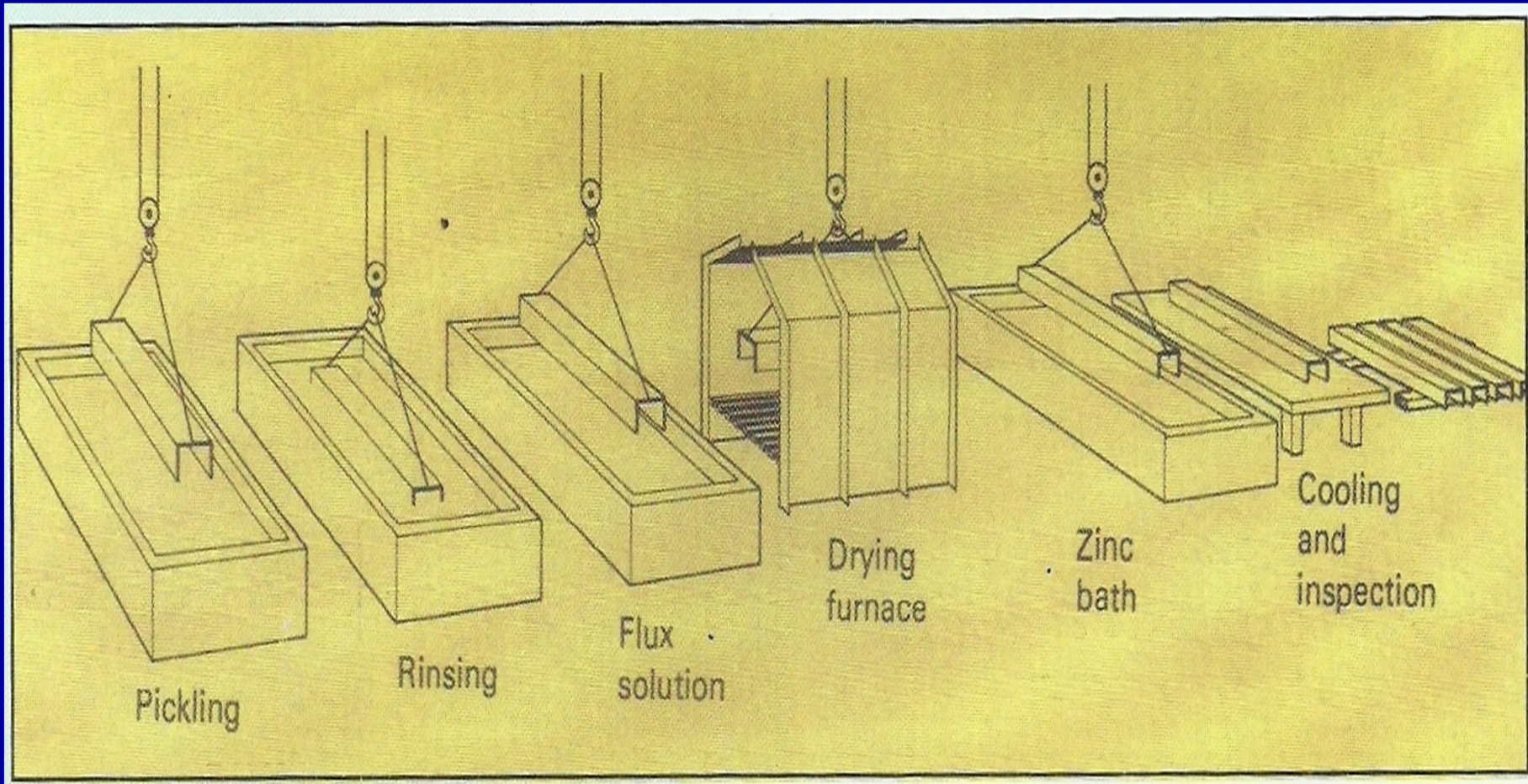
- ❖ *third widely used non-ferrous metal*
- ❖ *when molten, great affinity for steel*
- ❖ *recyclable & reusable*
- ❖ *essential for life*
- ❖ *known for excellent corrosion resistance*
- ❖ *two-thirds used in coating*
- ❖ *twelve inherent advantages*

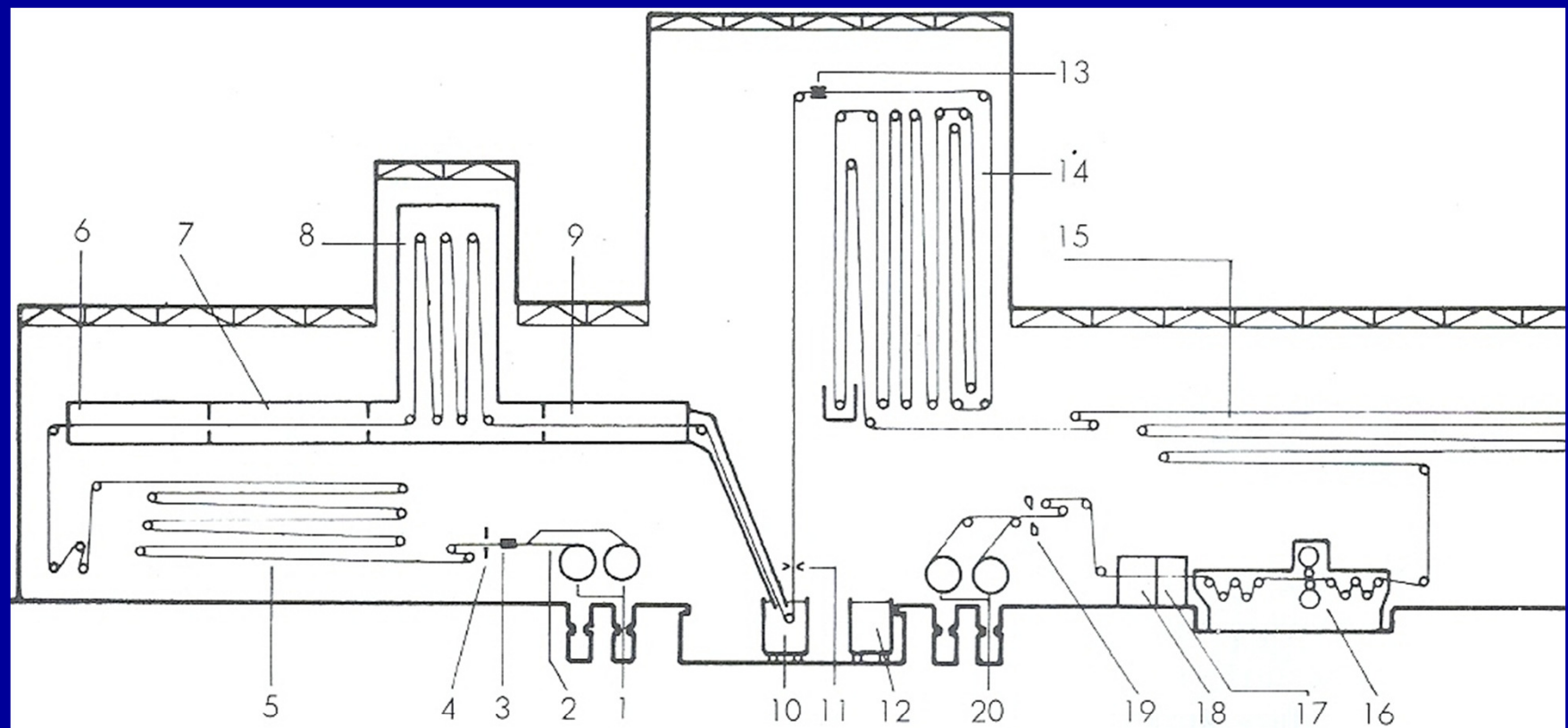
Hot Dip Galvanizing



*A factory controlled metallurgical
reaction of zinc and steel that provides
“barrier” and “sacrificial protection” from corrosion*

Batch Galvanizing Process





1. Uncoilers
2. Coil flattener
3. Thickness gauge
4. Welding machine
5. Entry looper

6. Non-oxidizing furnace
7. Annealing furnace
8. Soaking furnace
9. Jet-cooling section
10. Zinc pot

11. Air-wiping equipment
12. Galfan pot
13. Coating gauge
14. Over-aging
15. Exit looper

16. Temper mill
17. Inspection section
18. Chromating section
19. Flying squaring shears
20. Coilers

Public Infrastructure

Telcom



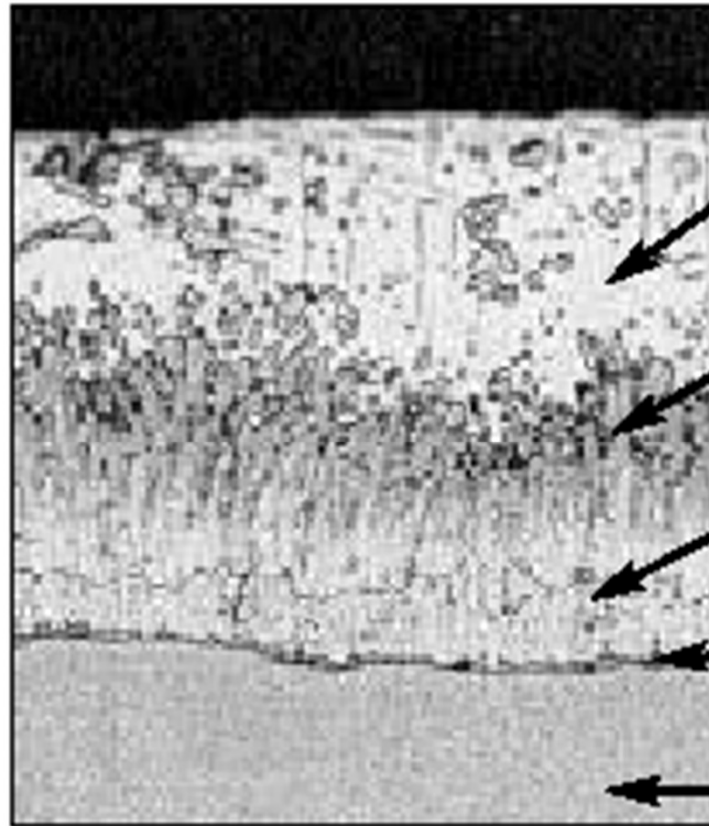
Power



Railways



Advantage 1:
Maintenance Free
Long Term Protection



Eta

(100% Zn)

70 DPN Hardness

Zeta

(94% Zn 6% Fe)

179 DPN Hardness

Delta

(90% Zn 10% Fe)

244 DPN Hardness

Gamma

(75% Zn 25% Fe)

250 DPN Hardness

Base Steel

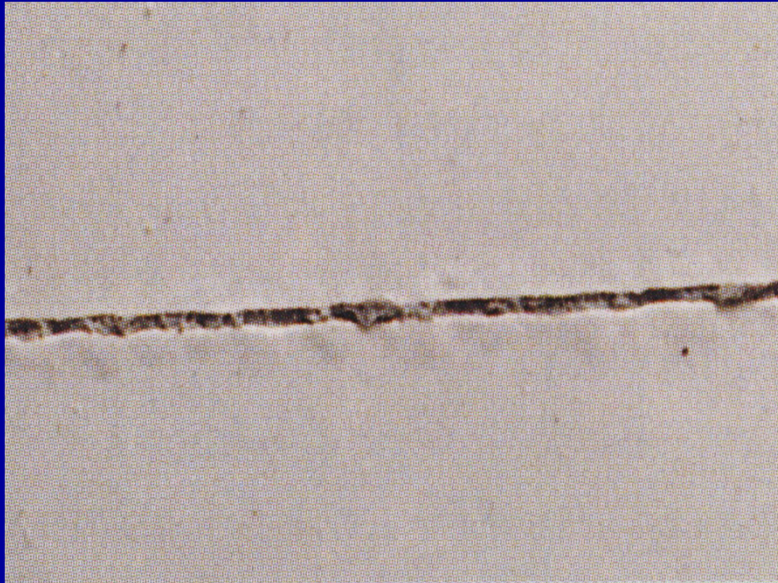
159 DPN Hardness

Advantage 2:

***Metallurgically Bonded Coating;
Excellent Wear & Abrasion Resistance***

Zinc

– Sacrificial Protection



*Painted zinc-coated
steel sheet*



*Painted steel sheet
unprotected by zinc coating*

Advantage 3:

**Zinc Provides Sacrificial Protection also;
Electrochemical Property**

Reactivity Rates

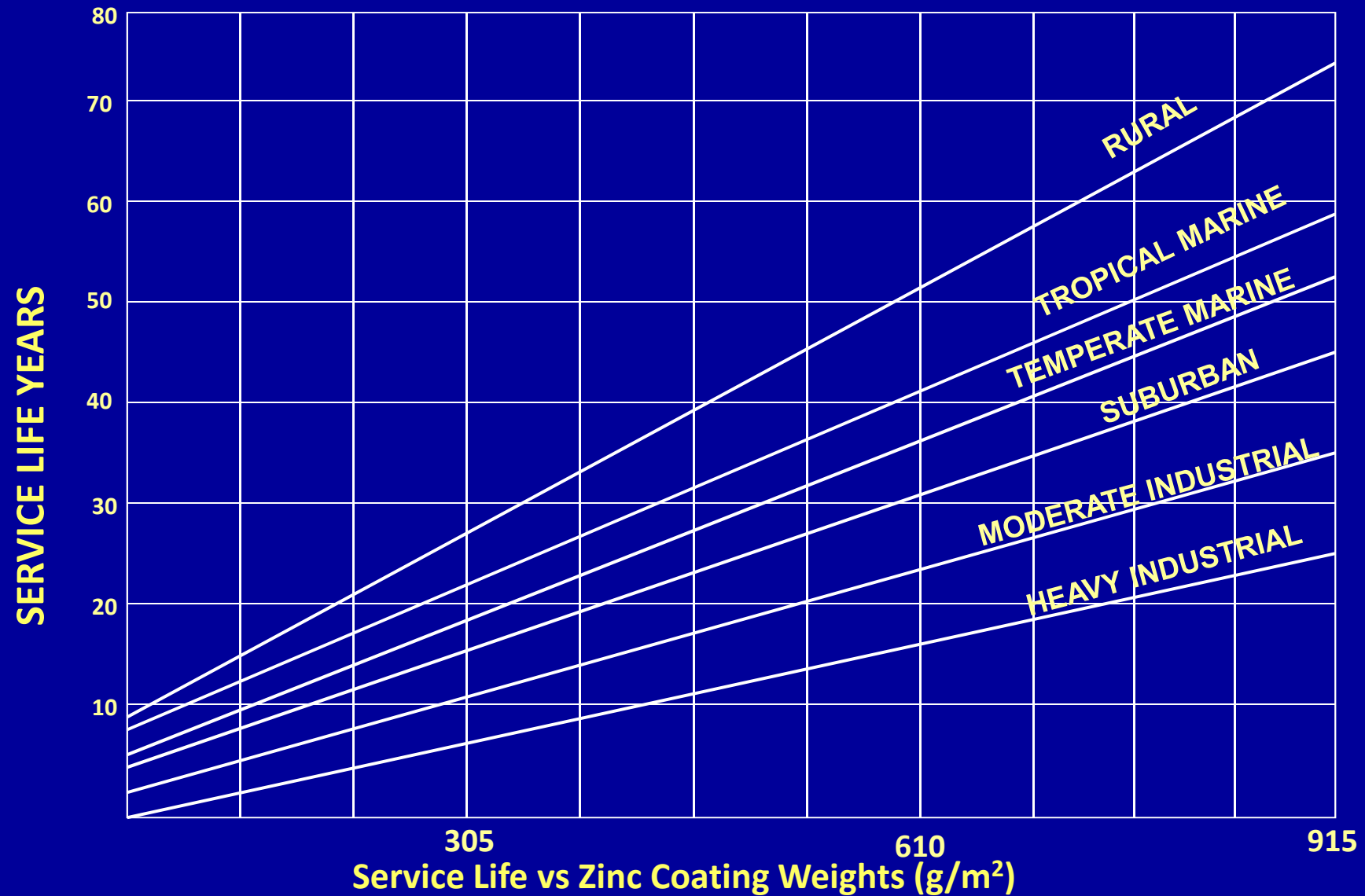
Steel : Zinc

<i>Test panel weight loss in various exposures</i>	
<i>Dry</i>	<i>17 : 1</i>
<i>Rural</i>	<i>22 : 1</i>
<i>Light Industrial</i>	<i>28 : 1</i>
<i>Industrial</i>	<i>52 : 1</i>
<i>Marine</i>	<i>80 : 1</i>

Advantage 4:

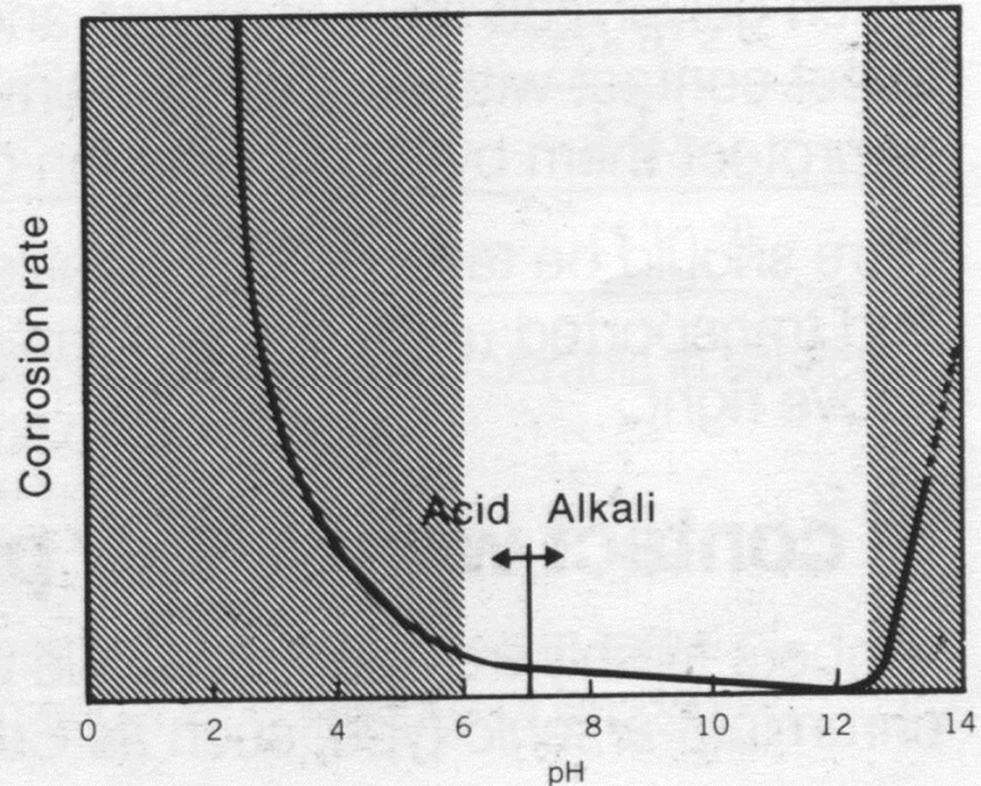
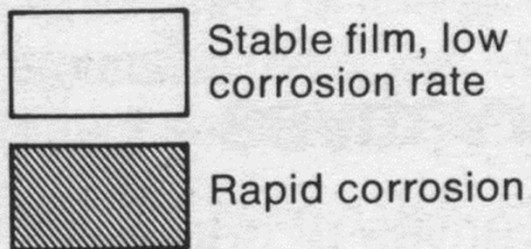
Zinc Gets Consumed Very Slowly

Life of Zinc Coated Products



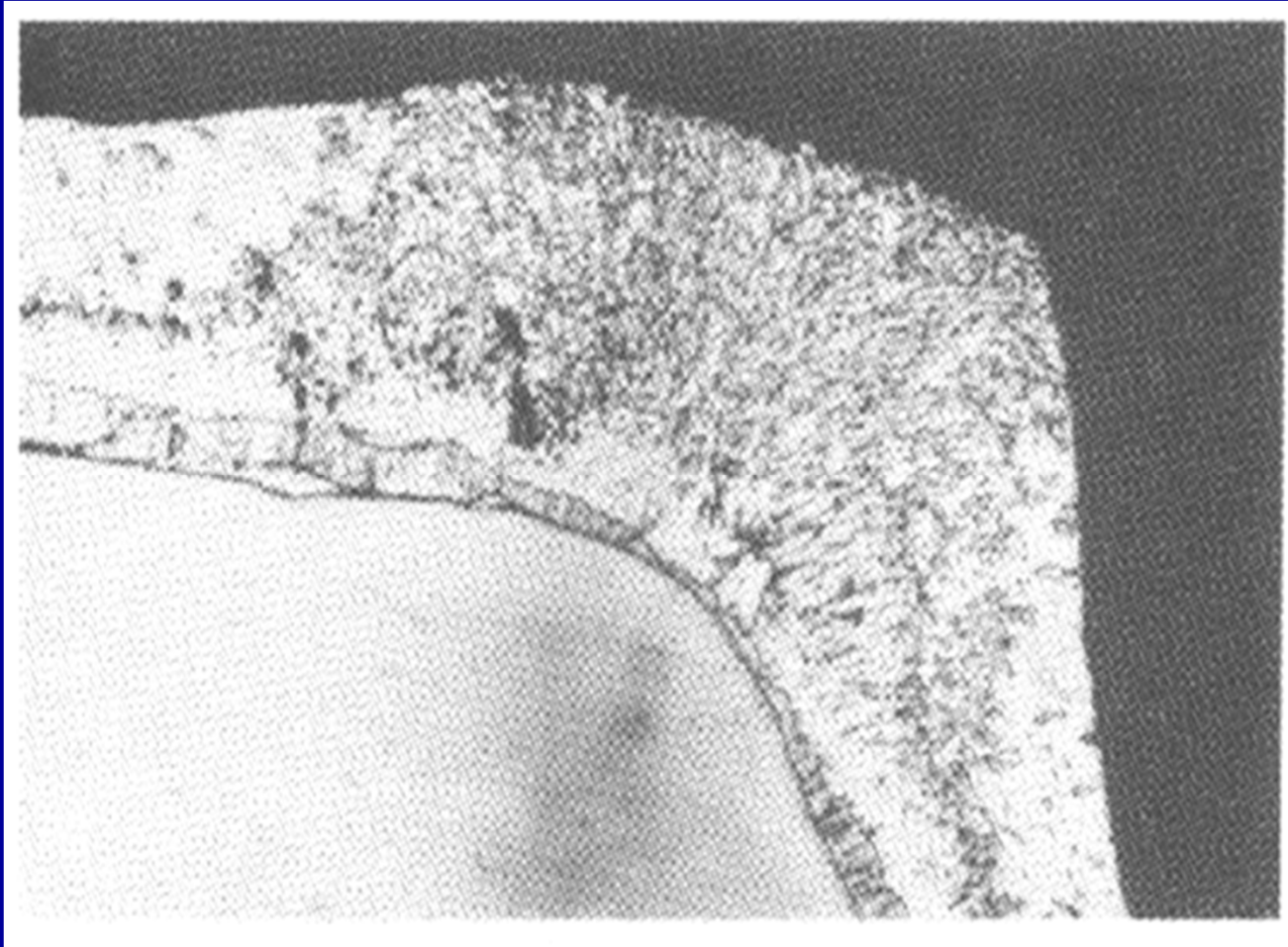
Advantage 5: Life Directly Proportional to Zinc Coating Weight

Effect of pH on corrosion rate of zinc. In the range pH 6 to pH 12.5 the zinc coating forms a stable protective film and corrosion rate is low.



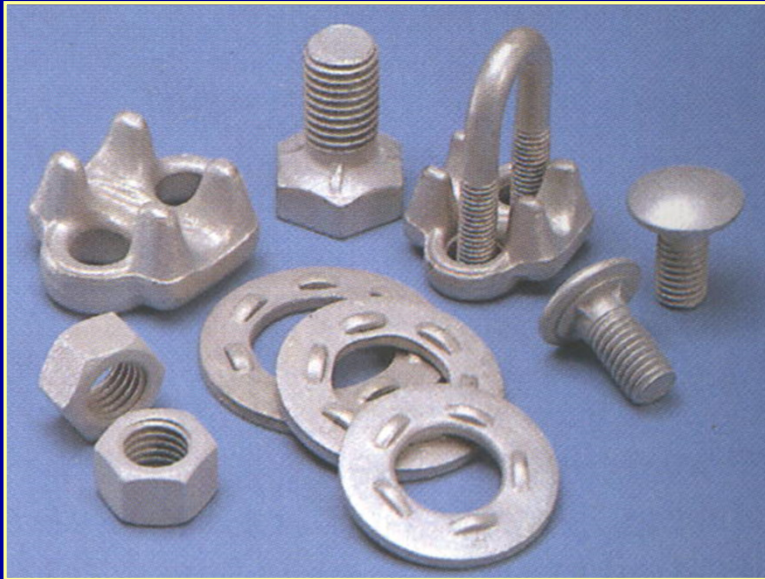
Advantage 6:

Zinc is preferred, pH 6 to 12.5



Advantage 7:

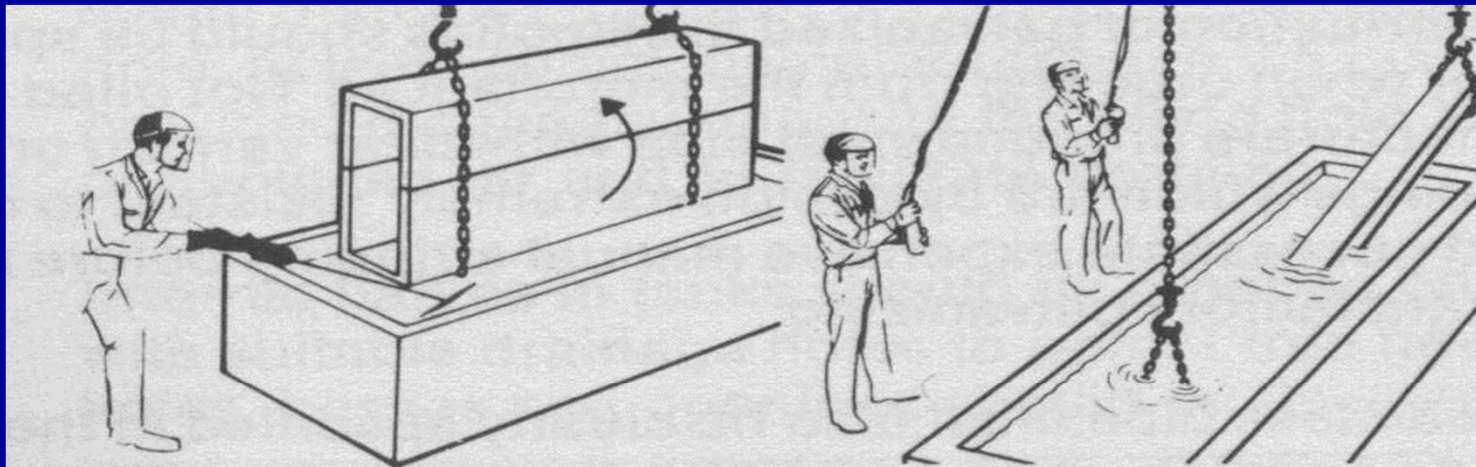
Corners & edges, Galvanized coatings are thicker



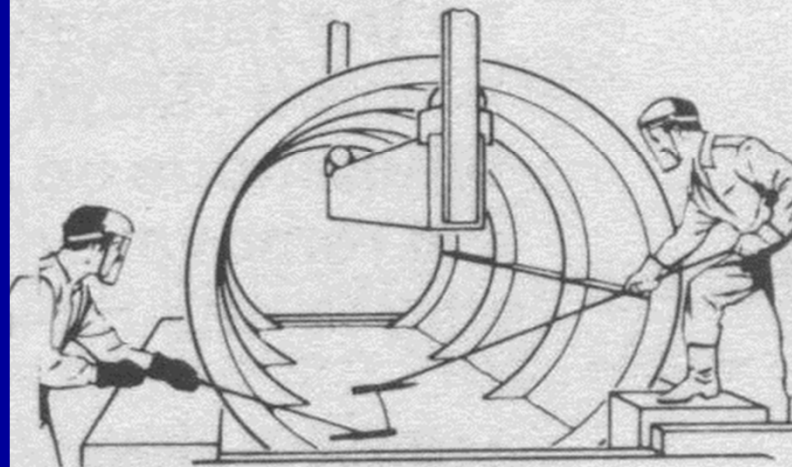
Advantage 8:

small to very large, galvanizable

Double Dip for Bigger Jobs



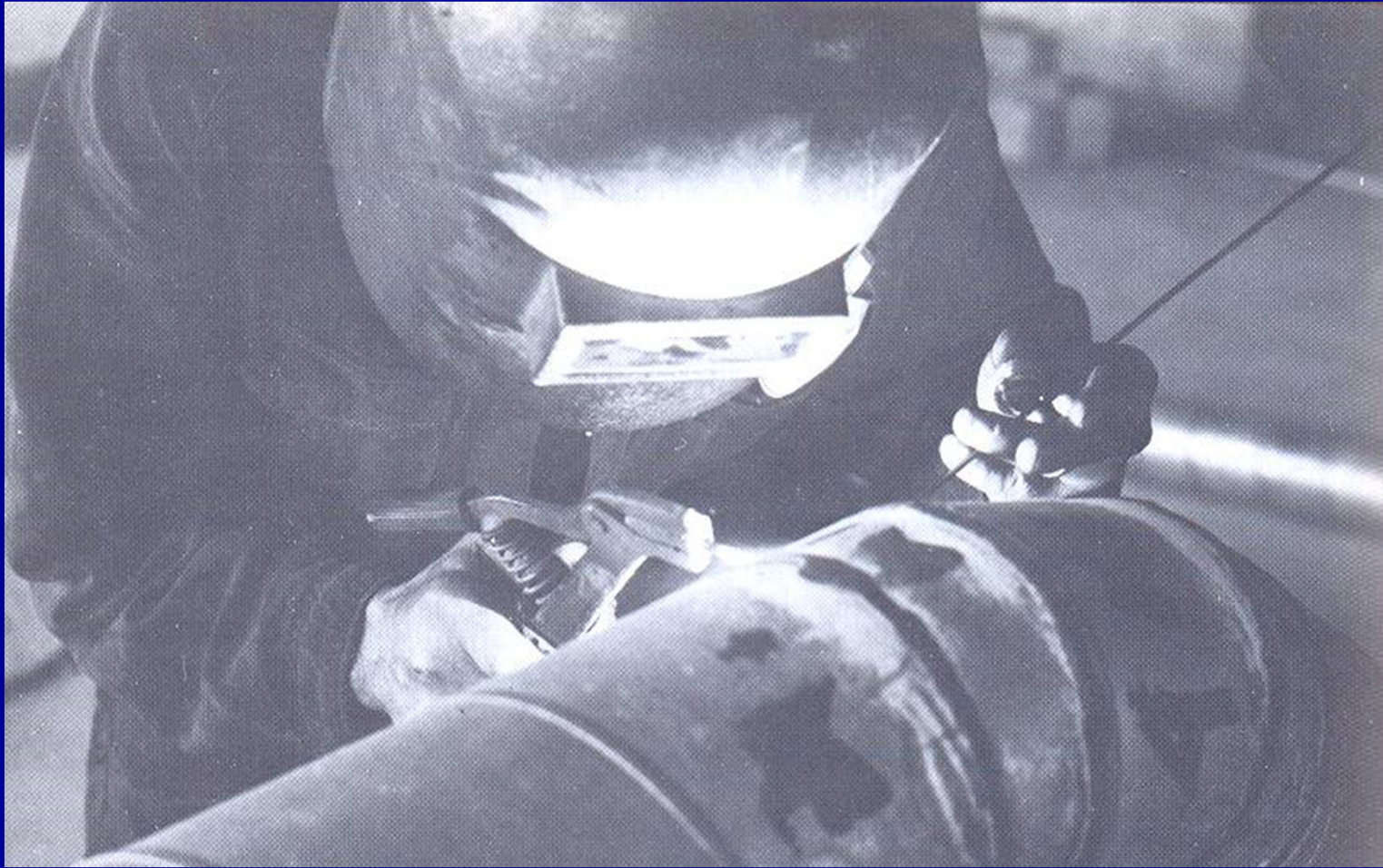
Double dipping for excess depth. Double- end dipping for excess length



Progressive dipping

Advantage 9: Bigger sizes can be double dipped

Weldability



Advantage 10:

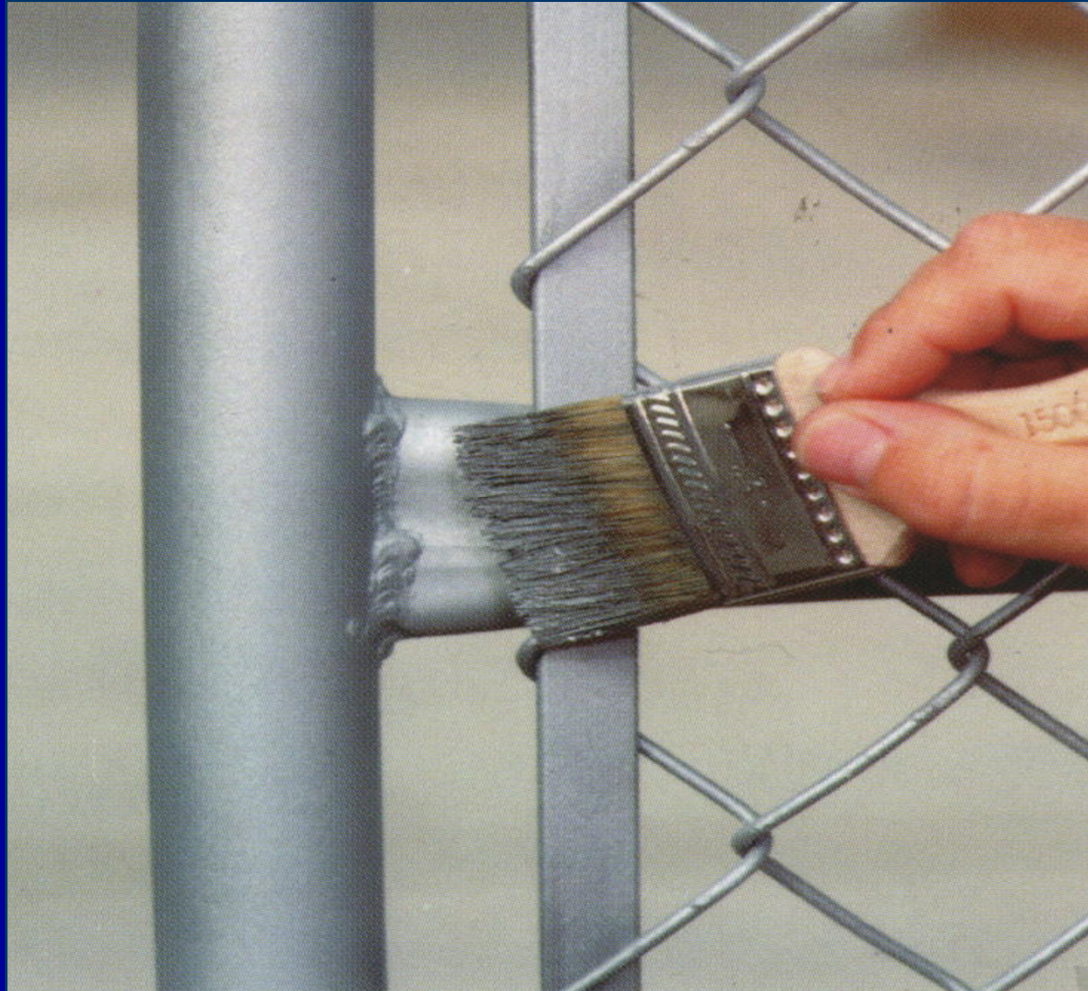
Galvanized jobs are weldable too

Recommended Touch-ups



Zinc rich paints/Zinc repair stick/Zinc spraying

Paintability of Galvanizing



Advantage 11:

Galvanized steel is paintable

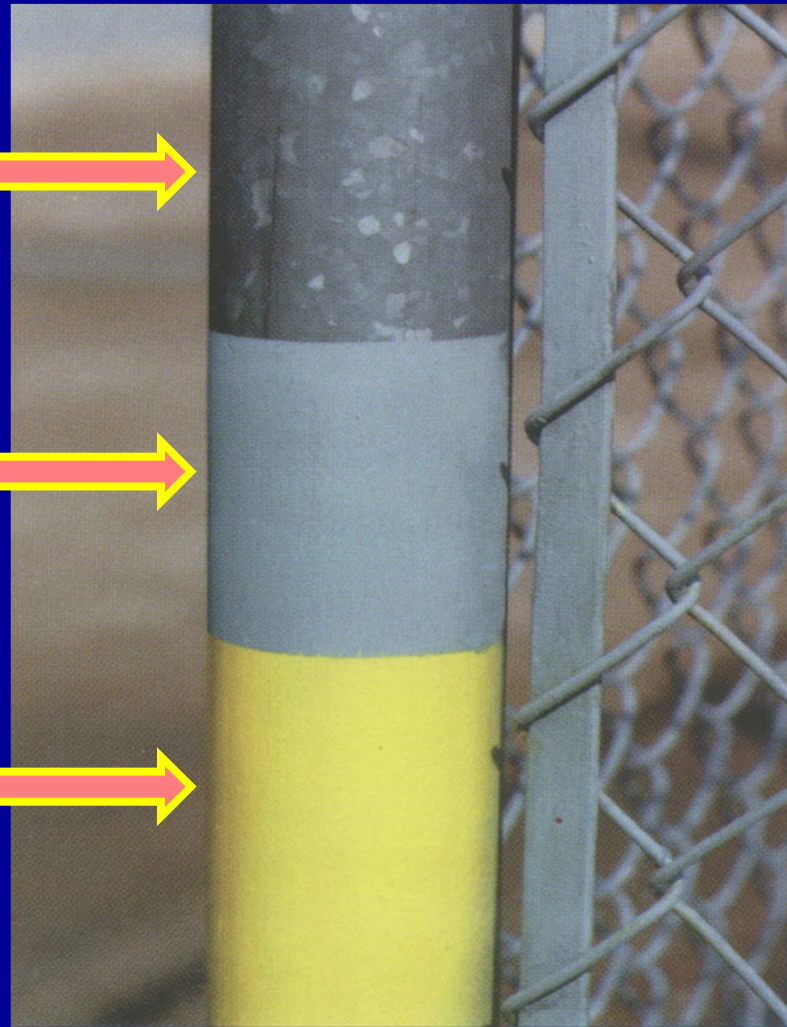
Duplex System

Hot Dip

Galvanized Steel →

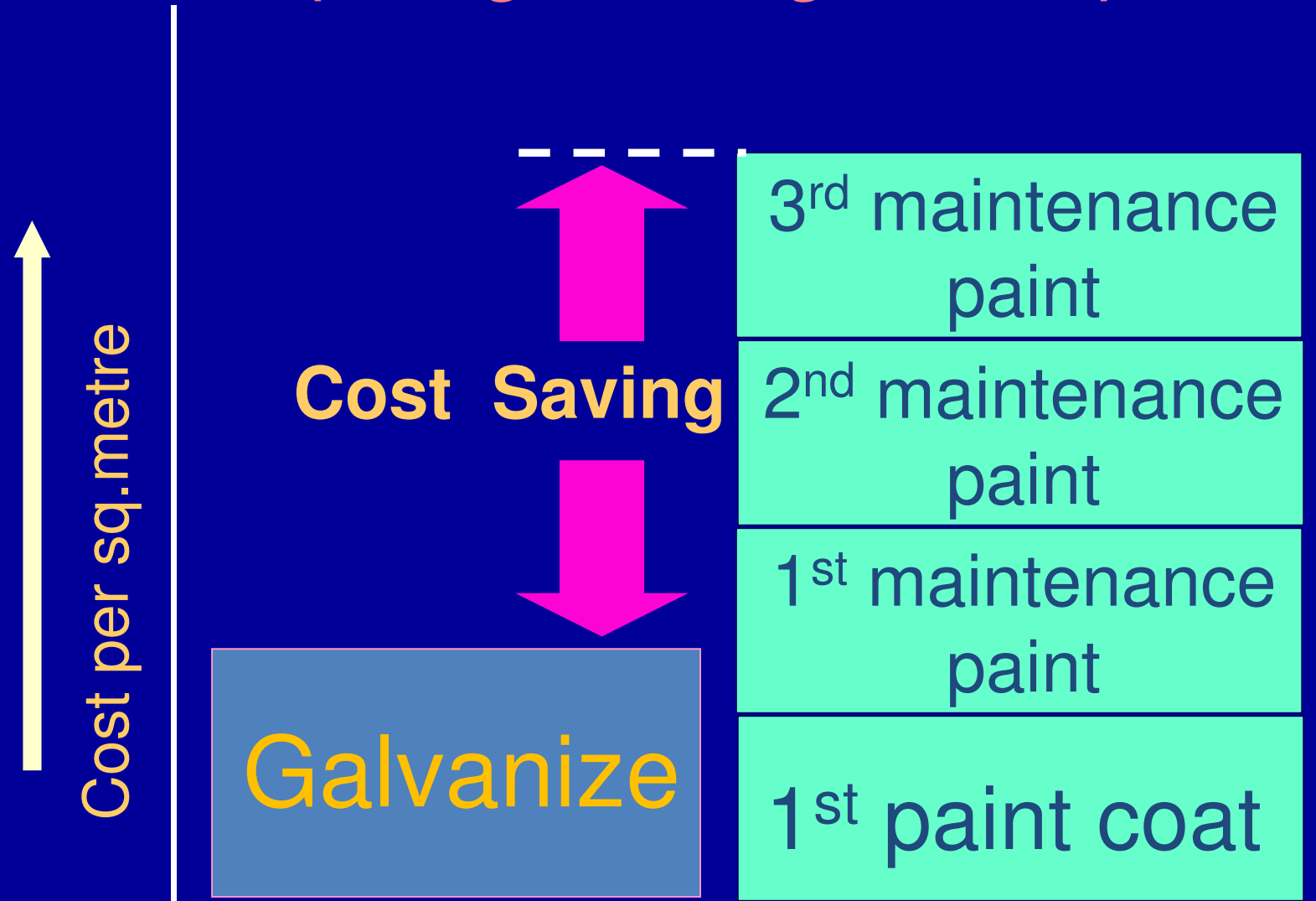
Zinc-rich Primer →

Acrylic Top Coat →



“Life-cycle” Cost Concept

(www.galvanizingcost.com)



Advantage 12:

***“With Galvanizing,
your **FIRST COST** is your
LAST COST”***

THINK ZINC!



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