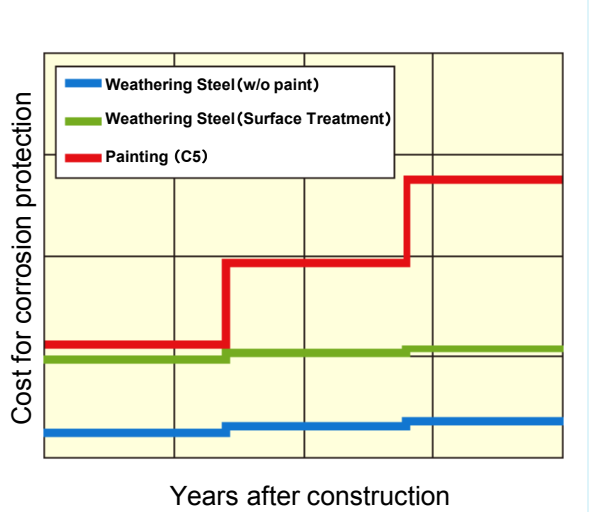
Weathering Steel for Bridges

Reduce Life Cycle Cost

■ Life Cycle Cost Reduction

- Protective rust whose growing speed is pretty low is formed on the surface of bridge girders, Therefore serviceability for many years without painting is possible by using weathering steel.
- JIS SMA and High Nickel type weathering steels are prepared. JIS SMA400W, 490W, 570W are possible to use under 0.05mdd airborne salt, and High Nickel type resisting to higher airborne salt.
- High Strength Steel for 500 MPa yield strength SBHS500W, for 700MPa YS SBHS700W are prepared.
- High Nickel Type weathering steels are prepared by each steel making company.



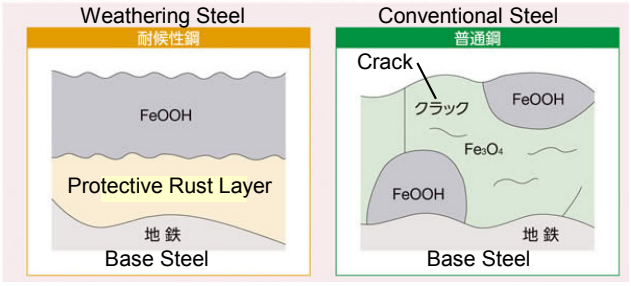
Area division for application

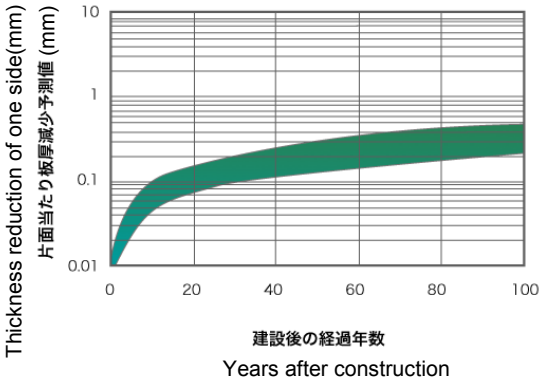
- Depending on amount of airborne salt from sea, area division is specified.
- Along the Pacific Ocean, bridge site is more distant over 2km, weathering steel is applicable without painting.
- Distance in each area division indicates 0.05mdd airborne salt.

Feature

- Different from ordinary steel, protective rust is formed on the surface of weathering steel by adding Cu, Ni and Cr.
- Once protective rust is uniform and minute, its thickness increases very slowly in decades.→ application without painting is possible.

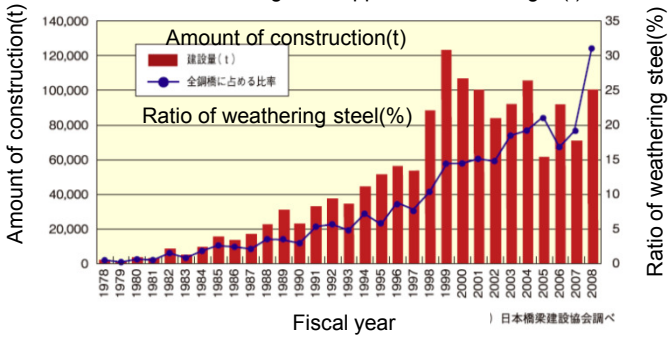
Diagram of rust layer after long term exposure





Application record

Amount of weathering steel applied to steel bridges(t)



More than 1 million tons (Accumulated)

Cost

Initial construction cost (Ratio)

Weathering Steel 1.00

C-Paint System 1.19

Cost ratio for corrosion protection to initial construction cost of weathering steel without painting

Weathering Steel 0.008

C-Paint System 0.87

Japan Iron and Steel Federation &
Japan Bridge Association in 2003

Contact

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