

EXTERIOR DOOR PROTECTION



**CITY OF SIOUX FALLS
PUBLIC WORKS**
Providing a Better Quality of Life for You!

Public Works Department City of Sioux Falls, SD

Industrial Customer:

City of Sioux Falls Public Works

Project:

Fortify oxidized paint on an exterior metal door that was beginning to fail

Project Location:

Sioux Falls, SD

Applicator:

Industrial Solutions USA personnel

Coating Formulation:

Nano-Clear Industrial (NCI) coating

Application System:

Paint pad

Dates:

Original Application: June 30, 2015

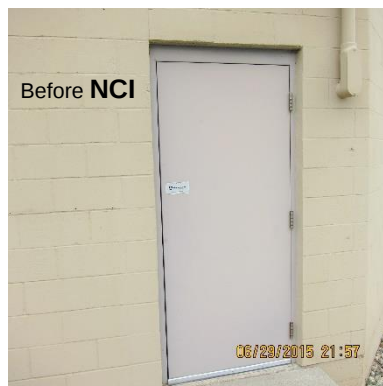
Conditions:

74F, 60%RH, overcast



PROJECT OVERVIEW:

Nano-Clear Industrial (NCI) coating was applied to an oxidized metal emergency door on this city building. The paint on the door had become oxidized from the sun and was degraded by weather. The protection from the paint was beginning to fail. The City of Sioux Falls decided to use NCI on the door to extend the protective service life of the paint and minimize maintenance costs of the door – deferring the high cost of re-painting.



Coating Formulation:

NCI - a crystal clear, aliphatic, moisture cured, one component polyurethane/polyurea hybrid formulation with extreme cross-link density for UV, chemical and abrasion resistance.

NCI is formulated to penetrate and fortify existing paint systems (newly painted or highly oxidized), not replace them.

Applications:

Doors, facilities, fire hydrants, above ground storage tanks, equipment, implements, bridge rails, steel bridge girders, signs or trucks that have degraded paint from UV, chemical and abrasion forces. Newly painted assets should also be a primary application consideration.

EXTERIOR DOOR PROTECTION

CURRENT SITUATION:

The City of Sioux Falls' maintenance responsibilities across all departments is a significant portion of their respective budgets. The City of Sioux Falls recognizes there are new and innovative products developed every year that can reduce maintenance costs. Industrial Solutions USA presented the City of Falls with **NCI** as an effective product to extend the protection of the city's painted assets by eliminating the cost of at least one re-painting maintenance cycle.

The Public Works Department of the City of Sioux Falls had an exterior metal emergency door that has become oxidized from UV and degraded by exposure to the weather.

The door had been painted with an aromatic paint formulation (the specific formulation was unknown).

The oxidized paint film was intact with only a couple of small areas where the paint had failed and rust had commenced.

The City agreed to use **NCI** on the door as a best practices trial that will fortify the existing paint system extending its service life so as not to have to re-paint the door which would have cost significantly more money in material and labor.

***Aromatic paint systems
need help to achieve the
years of protection
required by asset
owners/managers.***



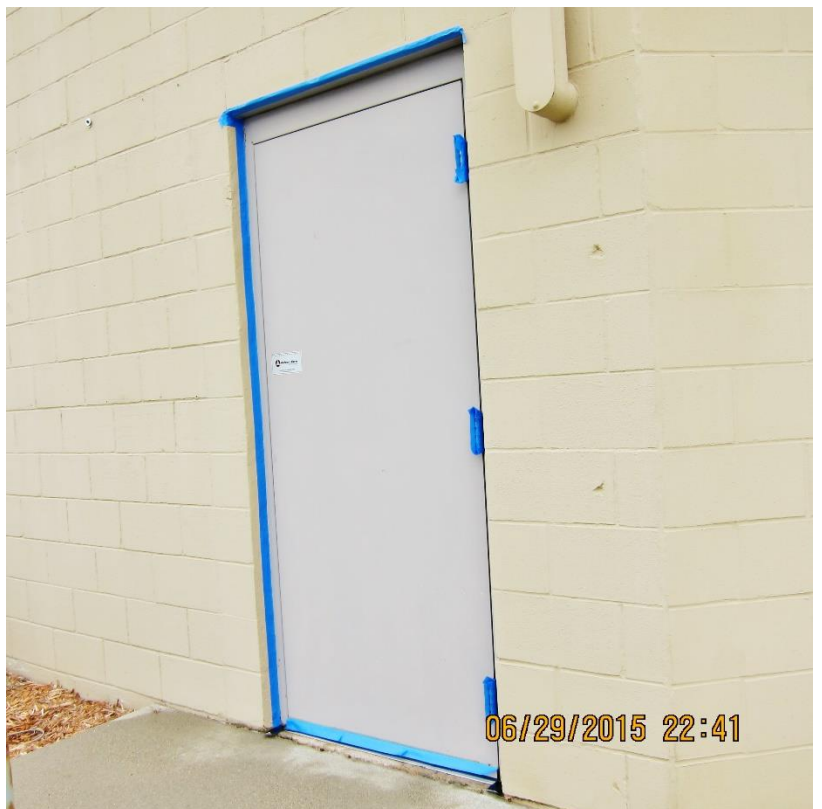
EXTERIOR DOOR PROTECTION

ISUSA SOLUTION:

NCI is formulated to penetrate and fortify oxidized, weathered paint systems. **NCI** is new cross linking formulation technology. This cross linking creates a “tough” coating that combines with existing paint systems forming a long lasting protection solution.

NCI chemically bonds to the paint with adhesion promoters and also bonds mechanically by penetrating into the porosity of the underlying coating.

***NCI** is formulated to work in tandem with existing paint systems (oxidized and new) to enhance the protective properties of the paint system – eliminating at least one maintenance cycle.*



EXTERIOR DOOR PROTECTION

APPLICATION:

The metal door was coated with **NCI** on June 30, 2015.

Preparation:

- The surface was washed with a low concentration of biodegradable detergent and water using a sponge.
- The surface was rinsed with water using a sponge.
- The door air dried, some areas blown off with a power blower to remove water in the hinges and door jamb.
- The door was not media blasted or wire brushed.
- The door was masked, ready for application.

Application:

The application of **NCI** was done with paint pads.

NCI may be applied with HVLP or airless spray equipment but in this situation the door was close to a parking area and we did not want the overspray to land on any vehicles.

The area to be covered was small so paint pads were a good alternative to spraying.

- The door jamb was completed first using a small, trim paint pad
- In general, coat the surface of the existing paint with **NCI**, ensuring all areas of the painted surface are thoroughly coated - cross-hatching is recommended. Then go back to the coated area and maintain a smooth pass with the paint pad creating an even finish. Once an acceptable finish is obtained stop working the **NCI** and allow it to "level", this will minimize the brush lines. Because of the low viscosity of **NCI** (40cps) the finish will "smooth" out.
- The door itself was completed next using an 8" paint pad following the same procedures. The **NCI** was applied at the top of the door working a cross-hatch pattern down to the bottom of the door.
- It is important to watch the previous section you have applied the **NCI** to because on oxidized paint surfaces the **NCI** will absorb into the oxidized paint at different rates. When areas absorb more of the **NCI** than other areas simply go back and apply another light coat of **NCI** to even the finish.



EXTERIOR DOOR PROTECTION

Result:

Approximately 1 pint of **NCI** was used to cover the exterior door.

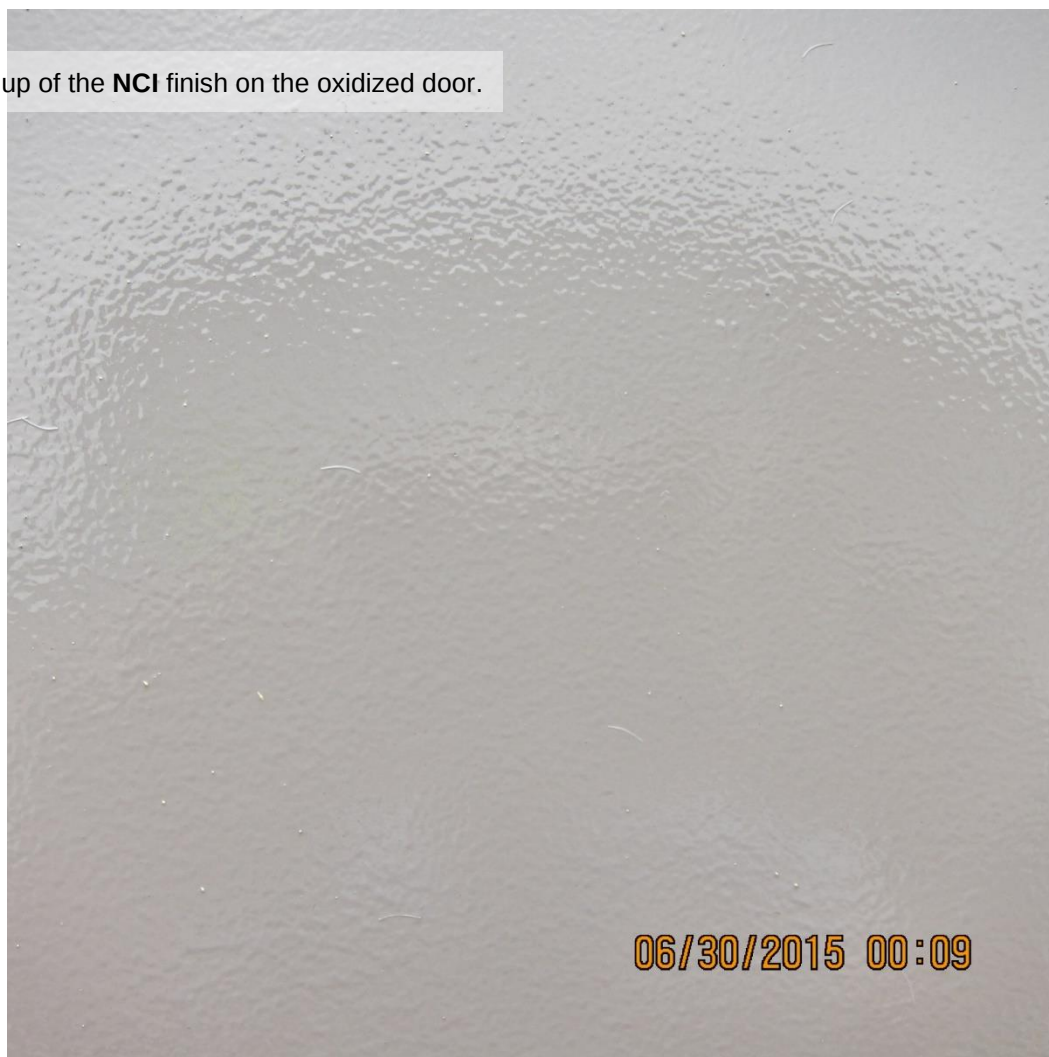
Reviewing the coated door:

- The overall finish was very good, the **NCI** penetrated and fortified the existing paint system creating an excellent monolithic coating film protecting the door.
- The finish has a nice gloss.
- The original paint color was enhanced.
- The resulting protective dry film thickness was approximately 1 mil.

Time to complete coating the door was less than ½ hour.

The door was almost tack free in approximately one hour.

This is a close up of the **NCI** finish on the oxidized door.



EXTERIOR DOOR PROTECTION

Emergency door after the application of **NCI** on June 30, 2015.



EXTERIOR DOOR PROTECTION

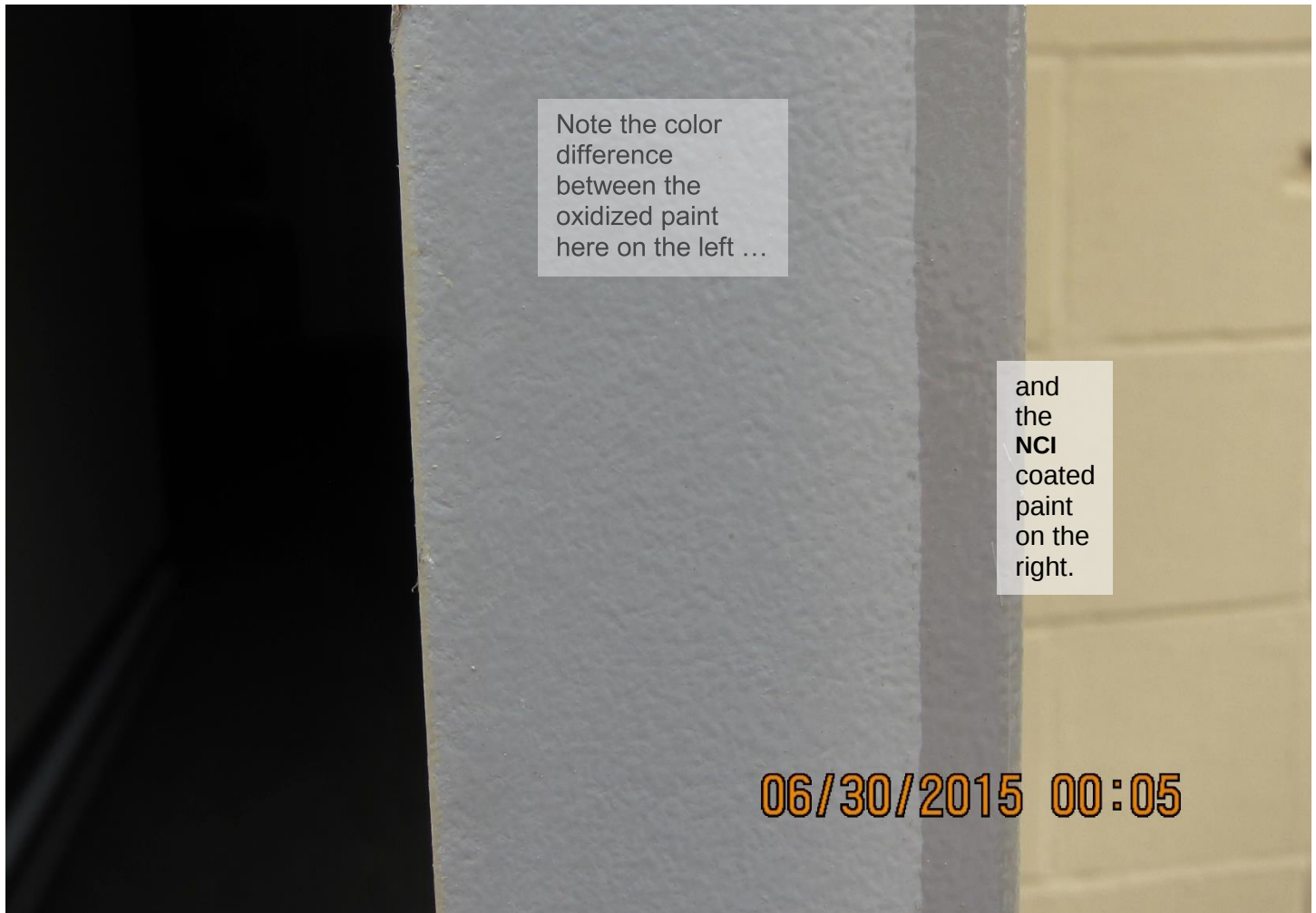
Emergency door after the application of **NCI** on June 30, 2015.



EXTERIOR DOOR PROTECTION

A remarkable difference!

NCI is crystal clear so it can be used on any color painted surface.



ABOVE GROUND STORAGE TANK PROTECTION

A close up looking up across the **NCI** finished on the exterior door.



ABOVE GROUND STORAGE TANK PROTECTION

A close up looking sideways across the **NCI** finished on the exterior door.



ABOVE GROUND STORAGE TANK PROTECTION

SUMMARY & CONCLUSION:

NCI was applied to an exterior metal door with oxidized paint.

The paint was oxidized over the entire door and jamb. There were very small areas of rust.

The substrate preparation prior to application of **NCI** was minimal – wash with low concentration of biodegradable detergent followed with rinsing using a sponge.

The photos in this report confirm the **NCI** penetrated the paint system and fortified it with superior physical properties – much better physical properties than the original paint was warranted with years earlier.

The combined **NCI**/paint coating system extends the protection of the metal door for years deferring re-painting maintenance costs.

In the future, it is recommended the **NCI** be applied after new paint has been applied and/or earlier in the lifecycle of the paint system.

NCI does not replace paint systems - **NCI** is the economical solution *to extend the performance life* of paint systems.

NCI Saves Money:

- Prevents pre-mature paint failures
- Eliminates substrate preparation required for new paint
- Eliminates labor for same
- Saves primer and paint material costs
- Saves labor for same



CALL TO ACTION:

Inspect the door in 12 months – June 2016.

Industrial Solutions USA is asking all departments in the City of Sioux Falls, to implement the application of **NCI** on newly painted and oxidized city assets including doors, facilities, storage tanks, equipment, implements, trucks and bridges.

Incorporating **NCI** into the City of Sioux Falls maintenance protocol will extend the service life of all assets and save significant money over the current paint system(s) alone.

**Industrial Solutions USA develops and sells “tough”
ELASTOMERIC LININGS & COATINGS
to help industrial customers protect their assets from destructive elements**

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