

CARBON FIBER COLUMN REPAIR WITH INTEGRATED CORROSION PROTECTION

SMITHFIELD PLANT | CRETE, NEBRASKA

Project Background:

At the Smithfield Plant in Crete, Nebraska, Epp Foundation Repair was contracted to address two deteriorated 16" x 16" concrete support columns. The columns showed signs of surface cover loss and reinforcing steel corrosion. Although structurally stable, the damage posed long-term durability concerns that required a modern, non-invasive reinforcement approach.

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CARBON FIBER STRENGTHENING SYSTEMS

The Solution

- Surface-applied, non-invasive repair strategy
- Utilized SRS-4100 Steel Guard, SRS-4000 Concrete Guard, and SRS-600UNI Carbon Fiber Reinforcement System
- Minimized demolition risks such as microcracking
- Enhanced long-term durability of the repaired columns
- Eliminated the need for rebar excavation



The Repair Steps Included:

- Removal of loose concrete
- Application of SRS-4100 Steel Guard to passivate corroding rebar and form a durable protective film
- Application of SRS-4000 Concrete Guard to densify the concrete, reduce porosity, and enhance adhesion
- Surface patching with a high strength mortar
- Confining reinforcement using 12" wide SRS-600UNI Carbon Fiber Straps, staggered and wrapped horizontally with a minimum 12" lap
- Protective coating over the CFRP system

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CASE STUDY

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Conclusion

With a fast and focused approach, Epp Foundation Repair mobilized their team quickly and carried out the repairs with expert precision.

The columns were restored to their original profile and structurally reinforced for long-term performance. This modern surface-applied system offered a fast, low-disruption solution with superior protection against corrosion and environmental stressors—extending the service life of a critical structural element in the facility.

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