

MIGRATORY CORROSION INHIBITOR (MCI®) PRODUCTS FOR CONCRETE

CASE HISTORY SPOTLIGHT

Case History #46: Repairing Pentagon Walls



A Print Print	CASE HISTORY
	PENTAGON: Restoration of all exterior walls
DATE April 203 Opening for pret 8-10 years	PROBLEM Corrosion of embedded reinforcing steel was causing spalling on the walls. It was determined that the cause was carbonation to a 35 inch depth on the walls, which lowered the pH of the concrete.
CUSTOMER US Government	APPLICATION The repair design parameters included: a minimum 20 year design life stop water
CORTEC® REPRESENTATIVE Neil Savitch, Construction Specialties Mark Stover, PMPSI	absorption into the walls, must reduce or stop corrosion, and that the appearance of the walls be changed as little as possible or not at all
SPECIFYING ENGINEER Eric L Edelson, P.E. Tadjer-Cohen-Edelson Associates, Inc.	The repair program prior to coating included 1,000,000 ft ² of surface area with 200,000 ft ² of hand patches.
CONTRACTOR Concrete Protection and Restoration	CONCLUSION MCI*-2020 V/O and ChemMaster's Colorsil
Washington, DC	were chosen to repair and protect the walls based on their 20 year warranties and the fact
PRODUCT MCI [®] -2020 V/O	that together they could fulfill the other specified repair design requirements.
4119 White Bear Parkway, St. Paul NN 55110 USA Phone (651)429-1100. Toil free (600) 4-CORTEC Fax (651) 429-122. Email: Info@cortecvci.com www.cortecvci.com	

The world's largest office building, the Pentagon, required repair in the early 2000's due to corrosion problems on the lightwell walls. Deep carbonation had lowered the concrete's protective alkaline pH, and a shallower than average concrete cover made matters worse. As a result, embedded steel reinforcement had corroded and caused spalling on a significant percentage of the building.

An extensive repair was required on 1,000,000 square feet (92,0903 m²) of surface area, with about 200,000 square feet (18,581 m²) of hand patching. The repair needed to stop water absorption and reduce or stop corrosion with as little change to the appearance of the walls as possible.

MCI[®]-2020 V/O played an important role in the concrete repair as a Migrating Corrosion Inhibitor[™] coating used to protect embedded rebar. A silane sealer was applied over the MCI[®]-2020 V/O, with another coating added on top of both for extra protection. Each of the components came with a 20-year warranty to provide satisfactory service life extension.

Read the original case history here: <u>https://www.corteccasehistories.</u> <u>com/?s2member_file_download=access-s2member-level1/ch046.pdf</u>

Read more about the project in STRUCTURE Magazine: <u>https://www.cortecvci.com/Publications/Papers/MCIProducts/Struc-</u> <u>ture_Magazine_Pentagon_Lightwell_Walls_Jan07.pdf</u>

Read more about the project in ICRI's Concrete Repair Bulletin: <u>https://www.cortecvci.com/Publications/Papers/MCIProducts/2009%20</u> ICRI%20Project%20of%20the%20Year.pdf

4119 White Bear Parkway, St. Paul MN 55110 USA Phone (651)429-1100, Toll free (800) 4-CORTEC Fax (651) 429-1122, Email: info@cortecvci.com www.cortecvci.com



Printed on recycled paper/100% Post Consumer

©2019, Cortec® Corporation. All Rights Reserved. Copying and/or manipulation of these materials in any form without the written authorization of Cortec® Corporation is strictly prohibited. ISO Accreditations apply to Cortec's processes only.