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## **Attention: New Product Editor**

August 25, 2003

### **PRODUCT NEWS RELEASE**

#### **Pentagon Walls Stop Spalling and Corrosion with Cortec® MCI® 2020 V/O**

200,000 square feet of hand patching began in earnest this April to the spalling of the exterior concrete walls of the Pentagon. As part of the on-going Pentagon renovation, the project will continue for the next 8-10 years to provide the Pentagon with sound walls incorporating a new coating system. The system calls for a minimum 20 year design life, reducing or stopping corrosion, stopping water absorption, and causing little or no change to the appearance of the Pentagon's concrete walls.

The corrosion and spalling on the Pentagon walls have been caused by carbonation. Carbonation occurs when carbon dioxide in the air penetrates into the concrete and reacts with hydroxides (such as calcium hydroxide) to form carbonates. While harmless to the concrete matrix, carbonation significantly lowers the alkalinity (pH) of the concrete. High alkalinity is needed to protect embedded steel from corrosion; consequently corrosion will initiate if carbonation of the concrete occurs. Cortec® patented MCI® 2020 has a proven track record of preventing this and other types of corrosion. Research studies show that application of MCI® 2020 can increase the service life of a concrete structure up to 70% longer compared to a control, in some cases by more than 30 years.

Cortec® MCI® 2020 effectively deters corrosion and spalling from carbonation as well as corrosive attack from sulfur dioxide, car fumes, air-borne salts and sea water near coastal areas. Its special V/O formulation provides an easy to apply thixotropic liquid designed especially for vertical surfaces and overhead areas.

An environmentally friendly product, MCI® 2020 V/O incorporates the latest Green Technology developed in Cortec Research Laboratories. Its water-based formulation does not contain calcium nitrites and is non-toxic, non-flammable, and safe to handle. It also has UL approval for meeting NSF Standard 61 for contact with potable water. Easily applied by spray, roller, squeegee or brush, it offers one of the easiest methods to prevent wall deterioration due to corrosion in concrete surfaces and structures. In addition to the 200,000 square feet of repair to spalled areas, over 1,000,000 square feet of Pentagon wall surface will be treated with MCI® 2020 V/O. This will provide corrosion protection to all the exterior Pentagon walls.

**Photo:** Photo of Pentagon from US Department of Defense can be found at:  
<http://www.defenselink.mil/photos/Apr1998/DF-ST-87-06962.html>

**Company Description:** Cortec® Corporation, a pioneer in environmentally friendly packaging, metalworking, cleaning, water treatment and metal protection technologies, is located in White Bear Lake, Minnesota. ISO 9001 and 14001 Certified, they manufacture over 300 products in five plants located in Minnesota and Wisconsin. Cortec is a global supplier of innovative and environmentally friendly specialty chemicals, plastics and coated papers.

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# MIGRATORY CORROSION INHIBITOR™ (MCI®) PRODUCTS FOR CONCRETE



## CASE HISTORY PENTAGON:

### Restoration of all exterior walls

#### DATE

April 2003, ongoing for next 8-10 years

#### CUSTOMER

US Government

#### CORTEC REPRESENTATIVE

Neil Savitch, Construction Specialties, Mark Stover, PMPSI

#### LOCATION

Washington, DC

#### PRODUCT

MCI® -2020 V/O

#### PROBLEM

Corrosion of embedded reinforcing steel was causing spalling on the walls. It was determined that the cause was carbonation to a 3.5 inch depth on the walls, which lowered the pH of the concrete.

#### APPLICATION

The repair design parameters included: a minimum 20 year design life, stop water 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. The repair program prior to coating included 1,000,000 ft<sup>2</sup> of surface area with 200,000 ft<sup>2</sup> of hand patches.

#### CONCLUSION

MCI® -2020 V/O and Keim's Concrete Coatings were chosen to repair and protect the walls based on their 20 year warranties and the fact that together they could fulfill the other specified repair design requirements.



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