

**Vector®**

## **Post-Tech™ PT Corrosion Evaluation** **Unbonded Post-Tensioned Concrete Structures**

**POST-TENSIONED  
SERVICES**

### **Description**

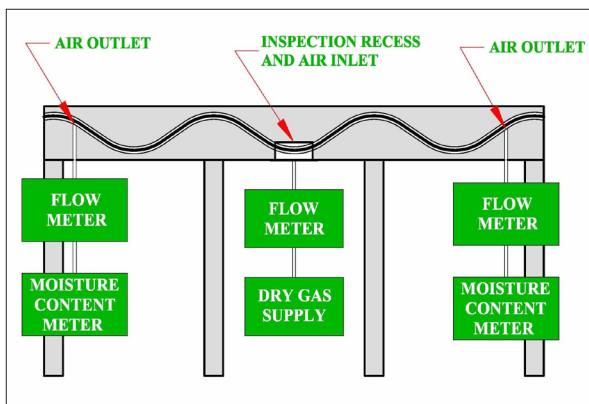
Early identification and mitigation of corrosive conditions can significantly reduce the costs of major repairs and the risk of structural failure. As part of an overall assessment of the condition of post-tensioned structures, a Post-Tech PT Corrosion Evaluation (formerly CPE) of heat sealed or push-through cables is recommended to gain an understanding of the structure, determine the cause and extent of the problem, and to assist in the preparation for corrosion mitigation. Vector's Post-Tech Corrosion Evaluation offers a non-destructive method of testing that can assist engineers and building owners in the assessment of overall cable conditions. The PT Corrosion Evaluation determines the degree of wetness inside a cable sheath by injecting dry gas or air and measuring the moisture content in the exhaust from the venting ports. There are two approaches for PT Corrosion Evaluation; Pilot Project and Full-Scale testing.



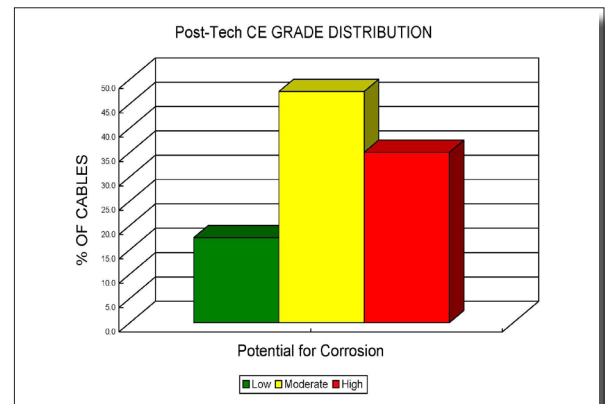
*Post-Tech PT Corrosion Evaluation of Cables*

### **How the Process Works:**

- Two small holes (approx. 5/8in (16 mm) diameter) are drilled into the structure to access the tendon sheath near the end anchorages.
- A central test pit, located on the underside of the slab is often used in Full-Scale testing. This serves well for visual inspection and future corrosion mitigation.
- Air ports are inserted and secured.
- Dry gas is injected at low pressure through the cable sheath.
- Measurements of the relative humidity and temperature of the air escaping from each of the “out” ports are taken using a calibrated Relative Humidity & Temperature (RH & T) sensor.
- Establish the degree of wetness of each tendon by grading the moisture content of the escaping air using the Post-Tech five-point system.



*Post-Tech PT Schematic of Test Set Up*



*Post-Tech PT Corrosion Evaluation Results Graph*



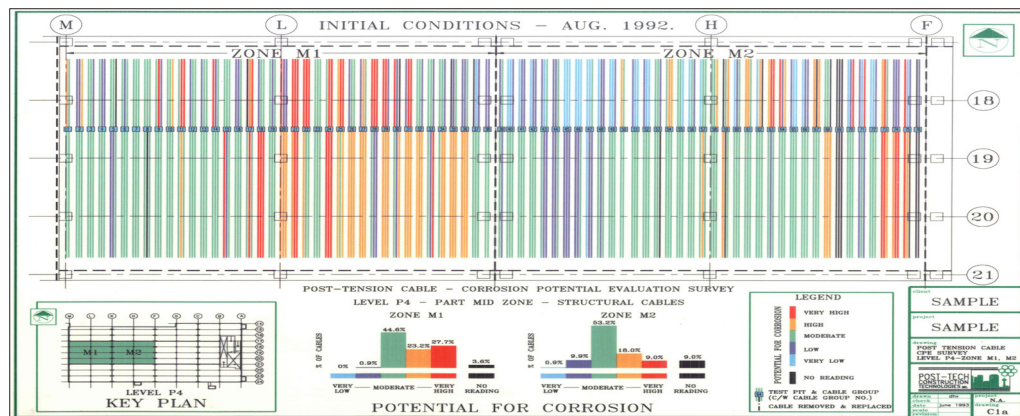
# Vector® Post-Tech™ PT Corrosion Evaluation

Research has demonstrated excellent correlation between the PT Corrosion Evaluation grade and the observed corrosion on cables removed for inspection. If a site specific correlation is required, a small percentage of tendons which are representative of the different construction pours and moisture levels within the structure, can be removed and inspected.

PT Evaluation Scale	Condition	Potential for Corrosion
0	No Air Flow	Unknown
1	Dry	Low
2	Moist	Moderate
3	Wet	High

## Results

The PT Evaluation results are depicted both graphically and on color-coded drawings. Each section of cable tested is color-coded to indicate the probable corrosion condition. This system permits ready evaluation of the test results for individual cables, for select areas of the structure, and for the structure as a whole. Permanent identification of all cables in a structure facilitates future inspection, repair, and preventative maintenance.



**Post-Tech PT Corrosion Evaluation Detail**

Once the PT Evaluation has determined the potential for corrosion within the cable sheath, a mitigation plan can be put into place using the Post-Tech PT Cable Drying system and PT Grease Injection to extend the service life and integrity of post-tensioned structures at a fraction of the cost of other repair methods.

The Post-Tech range of PT Corrosion Solutions is utilized as part of an overall strategy for the evaluation, identification, and protection of post-tensioned concrete structures. Structural assessments should be conducted by a qualified structural engineer. For corrosion mitigation of metals directly embedded in concrete such as temperature reinforcement and anchors, Vector recommends the use of galvanic corrosion protection systems. For additional product information please visit [www.vector-corrosion.com](http://www.vector-corrosion.com).