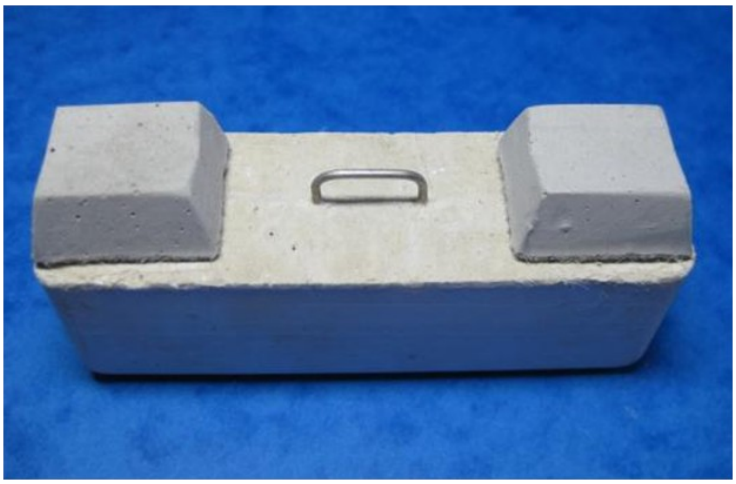
RebaGuard™ Installation Guidelines



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IMPORTANT: This installation methodology is an outline – modifications will be made for local site requirements and will be identified in the final specification.

1.0 Preliminaries

The structure should be assessed prior to application of the RebaGuard technology as follows;

1. **Review of records:** All available drawings and recorded information should be reviewed for information relating to location, quantity, nature and continuity of reinforcement and to concrete quality.

2. **Inspection**: An inspection shall be carried out to ascertain the type, causes, and extent of defects and any features of the structure or its surrounding environment which could influence the effectiveness of the RebaGuard anode. In particular, defects associated with delaminations, cracks, honeycombing or construction joints should be identified.

3. **Chloride content** – The chloride content of the concrete should be determined, at typical locations.

4. **Reinforcement location/concrete cover**: Steel reinforcement size and location should be established to confirm details in the drawings.

   Concrete cover of the area to be protected should be determined to ensure a minimum cover of at least 20 mm for the purposes of installation of the RebaGuard galvanic system.

5. **Reinforcement continuity**: Electrical resistance measurements to be performed to establish continuity of steel reinforcement/other metallic components on the structure. Any discontinuous components should either be treated as a separate zone or bonded to the main steel reinforcement.

6. **Concrete repairs**: Any concrete repairs previously undertaken on the structure should be assessed to ensure electrical resistivity is in the range 50 to 200% of the parent concrete.

7. **Stray currents**: The structure should be assessed for the presence of AC or DC stray currents. If stray currents are evident, remedial action must be undertaken under the auspices of a competent electrical/corrosion engineer.

2.0 Installation

1. Break-out the concrete in the areas in which RebaGuard anodes are to be installed. Concrete break-out will follow the guidelines in EN1504, including concrete removal from behind the steel reinforcement.

2. Having exposed the steel reinforcement to be repaired within the patch, a location for the RebaGuard anodes should be identified. Any additional break-out to ensure appropriate cover of the RebaGuard anode following reinstatement should be undertaken at this stage.

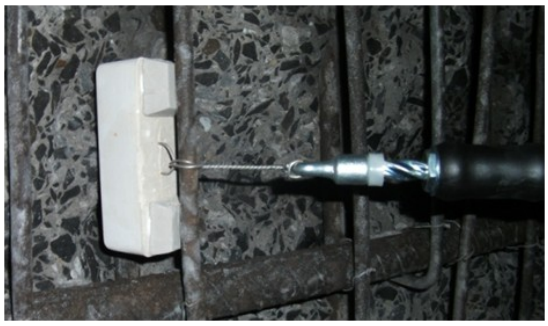
3. Confirm steel continuity in areas to be treated. If steel is discontinuous, it should be dealt with as detailed in (5) above.

4. Clean the steel in the vicinity of the proposed RebaGuard unit location, to facilitate electrical connection of the anode.

5. Soak the RebaGuard unit in water for between 1 and 3 minutes. (**Note**: The water will be absorbed rapidly into the outer coating of the RebaGuard anode – DO NOT soak for longer than 3 minutes as this may be detrimental to RebaGuard performance).

6. Immediately apply the pre-soaked RebaGuard unit to the reinforcing steel at the specified location using the stainless steel tie wires provided. The tie wire should be threaded through the tying point on the anode and wrapped around the steel reinforcing bar.

7. The twisting tool should be used to tighten the stainless steel tie, thus attaching the RebaGuard anode to the reinforcing steel bar. Additional stainless steel wire ties should be applied if the RebaGuard unit is to be applied between reinforcement bars or if the anode exhibits significant movement relative to the steel bar which may compromise the patch repair.



Note: Rapid over-tightening may cause the stainless steel wire tie to break. Any broken tie should be removed and replaced.

8. The electrical resistance between the tying point on the RebaGuard anode and the reinforcing steel should be confirmed to be <1 ohm using a suitable meter. If the resistance is >1 ohm then the RebaGuard anode tying point should be removed, the reinforcing steel should be cleaned, and the RebaGuard anode tying point re-installed. This process shall be continued until a resistance <1 ohm is achieved.

The electrical resistance of all anodes should be recorded as follows;

Unit	Data Test	Electrical Resistance/ ohm

A copy of this data shall be handed to the engineer/client and Concrete Preservation Technologies Ltd at the end of the project.

9. The RebaGuard units shall then be encased in the repair mortar ensuring complete coverage of the anode surface. The resistivity of the patch repair material should be in the range 50-200% of the parent concrete under the same conditions; if the resistivity is outside this range then a bridging mortar of low resistivity shall be applied between the anode and the edge of the patch.

Patch repair material cover to the RebaGuard unit must be a minimum of 20 mm.
Note: Insulating patch repair materials and primers (e.g. epoxy modified) shall not be used with the RebaGuard anodes as this compromises current flow from the anodes to the parent concrete outside the patch repair.

10. The patch repair should be completed ensuring the RebaGuard unit is not disturbed

