

The Specialist – “sharing through experience”

Machines Vessels Piping Materials Fired Equipment Civil Structural Inspection Electrical Instrument Control Process Safety Projects

Structural Integrity

“How can this be preserved?”

Structures such as columns and pipe-bridges can and do fail in service through corrosion and in certain extreme circumstances can lead to unplanned structural collapse.

Following a formal ‘Structural Registration Process’ and implementing targeted schemes of examination, early warnings of potential problems and subsequent remedial solutions can be addressed proactively.

Solutions may Include:

- Improving environmental conditions
- Re-assessment of design loads
- Ongoing load management
- Structural repair
- Structural replacement
- Specifying a correct coating

To help assist you in the management of your structural assets, guidance is available including:

Guide to Surveys & Inspections of Buildings and Associated Structures: Institute of Structural Engineers 2008.

Appraisal of Existing Structures, 2nd edition - The Institution of Structural Engineers, 1996. (3rd edition soon to be released)

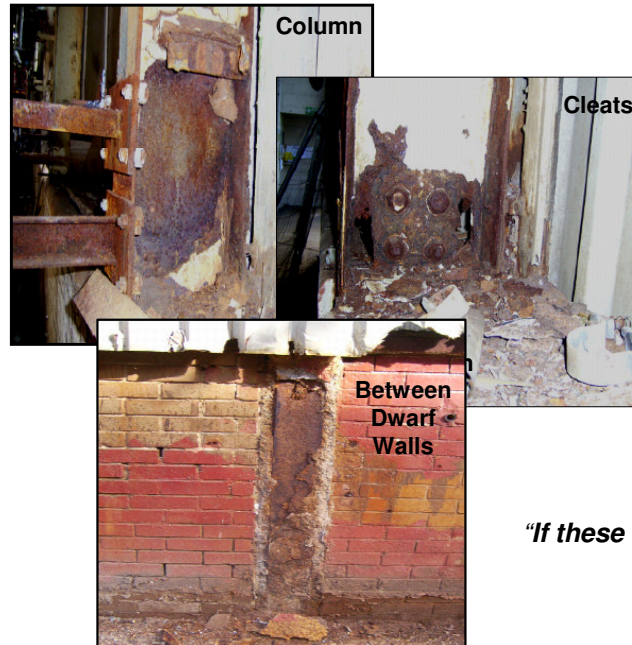
Contact **Keith** for further information.
 Tel. +44 (0)1642 372343
 Mob. +44 (0)7889 829175
 keith.baisden@gb.abb.com

Corrosion of main building steelwork – the hidden threat

“Do you really know the condition of the structures in your area?”

Background

- Condition of building steelwork exposed during demolition.
- Main columns had extensive corrosion and delamination beneath paintwork.
- Bracing and fixing cleats completely corroded.
- Cladding angle supports deteriorated to the point of collapse.
- Bracing fixing cleat no longer connected to main column.



Investigation

- Building was used to house a multi-purpose batch chemical plant.
- Corrosion was due to water and residual chemicals washing down the landings and collecting on the brickwork.
- Structures were not subject to appropriate inspections, the structural inspections were limited to visual inspection of accessible areas “out of site, out of mind” mentality.
- Adequate coatings were not applied.

Key Elements

- Many design features can encourage accelerated corrosion of structural steelwork.
- A formal Structural Registration Process enables structures to be assessed for criticality and appropriate schemes of examination and targeted inspections to be carried out!
- Coating systems need to be correctly selected, properly applied and ‘importantly’ adequately maintained.

“If these walls could talk, they would have a sad story to tell”