



Course Title: Repairing Traditional Masonry structures

Duration: 1 day

Course Description:

This one-day workshop is taught by a blend of theory and practical 'hands-on' sessions, covers the construction and appropriate repair of traditional masonry structures such as culverts, tunnels, light houses, viaducts, canals, harbours, retaining walls, piers and masonry arch bridges using natural stone and the range of lime and early patented cements that have been used in the past as bedding and pointing mortars.

These structures contribute so much to the richness of our built heritage and many are still in use after 200+ years.

But in many cases, we are asking these structures to outperform any of the expectations that their original designers intended, which can leave us with various 'headaches' to deal with, without spoiling their beautiful aesthetics. There are now a wide range of lime and natural cement binders along with additives that can be used to emulate both the technical and aesthetic performance of original mortars in repair schemes from re-pointing to stitching cracks and grouting structures to secure them.

Learning Outcomes:

- Recognising different types of failures in masonry construction;
- Ability to recognise different types of mortar, which are original and which are later interventions;
- Understanding masonry unit construction in solid walls and masonry arches and the role of mortars;
- Identifying voids in structures;
- Understanding the principles of grouting;
- Identifying the mortar performance requirements of replacement mortars on different elements of a structure, including above and below high and low water marks, cut waters, piers, abutments, bridge spandrel walls subject to heavy road traffic, parapets, retaining walls, embankments, undersides of arches, tunnel walls and the like;
- Use of additives to augment the working and final performance characteristics of replacement mortars and grouts;
- Making and using mortars with accuracy and consistency;
- Correct application and curing of mortars for repointing, grouting and rebuilding works;
- Identifying dormant cracks in masonry structures;
- Crack stitching with mortar and stone and concealed embedded stainless steel reinforcement.

Course Outline:

- Health and safety issues
- Historic use of lime and early patented cements used in traditional mortars
- Common types of failures and remedies appropriate to masonry structures including masonry arches
- British and European Standards for building limes and natural cements
- Choosing appropriate sands and aggregates for mortars and grouts

- Additives for use in replacement mortars
- Best practice for proportioning materials for accurate and consistent mortar mixing
- Building a masonry arch in natural stone dry
- Repointing masonry
- Designing and executing grouts to consolidate voided structures

Suitable for: This workshop is suitable for Structural and Civil Engineers and their technicians including those that look after our roads and railway network, contractors working on unprotected masonry structures and for custodians of our industrial heritage.

Please contact us if you would like to discuss which course is suitable for you.