

BUILDING CONSERVATION MASTERCLASSES

CONSERVATION OF HISTORIC CONCRETE

B3D08215 10-13 JUNE 2019 (3 day course)

This course is intended for architects, surveyors, engineers, contractors and conservators working with architecturally or historically significant structural or decorative concrete.

It has been prepared in response to the increasing number of concrete buildings, both pre-cast and in-situ structures, which are now recognised as historically significant and are being listed.

The course discusses how to develop and implement a conservation and repair strategy for concrete buildings and includes constituent materials and construction processes and consideration of weathering and decay processes. It will consider how to address both design deficiencies and changing performance requirements and will cover testing methods.

Lectures, practical demonstrations and practical exercises will be complemented by films and discussions.

Scope of Training

The course includes the development and implementation of a philosophy; manufacture and construction processes; constituent materials and their characteristics; weathering and decay processes related to detailed design and environment; corrosion of reinforcement.

Surveying, recording and assessment of condition; suitability of proprietary repair systems; applying traditional repair approaches; assessing cracks, corroding reinforcement and surface spoiling; patch repairs; casting techniques; matching surface finishes; cleaning and other surface treatments; maintenance programmes; the importance of patina.

It will also include films and discussions about Park Hill Flats, Sheffield and the extraordinary concrete creation in Mexico, Las Pozas, created by the former owner of West Dean, Edward James, which is a current conservation challenge.

Duration

The course extends over three-and-a-half days and includes illustrated lectures, demonstrations, workshop practicals and a site visit.

Please remember to bring work clothes/overalls and shoes for practical sessions and a hi-viz jacket if you have one for the visit to Chichester (but we can supply these). A torch and umbrella may be useful on the short walk to the Auditorium and Ruinette.

Teaching Team:

Course Leader: Catherine Croft, Director, Twentieth Century Society, author of *Concrete Architecture* and the English Heritage Practical Building Conservation Manual on Concrete

Tutors:

Andy Coxall has over 17 years of practical and management experience in the conservation of historic buildings and structures

Jamie Fairchild, Director, Restorative Techniques Limited

Adrian Forty, Professor Emeritus of Architectural History at The Bartlett, University College London

Nevil Hopkins, Hon Events Secretary, Twentieth Century Society

Martin Post, stone conservator

Richard Stocking, Associate Director, Faithful and Gould

Stuart Tappin, Stand Consulting Engineers, consulting structural engineer, member of the Casework Committee of The Twentieth Century Society and leads the reinforced concrete group of the Structures Sub-committee of ICOMOS UK.

All students on this course will receive a copy of *English Heritage Practical Building Conservation: Concrete*.

Recommended Reading:

English Heritage Practical Building Conservation: Concrete, 2012, Ashgate Publishing

A full reading list is provided at the foot of these course details.

OUTLINE PROGRAMME

Day 1	Monday
16.00-18.00	Register at Reception Desk
18.45	Welcome Talk
19.00	Dinner
Evening	<p>Lecture.</p> <p>Scope and compass of course including practical sessions: What is concrete? Understanding the basic terminology and primary reasons for decay. Overview of current issues and debates for conservation-led repair of concrete.</p> <p>Film show and discussion: Park Hill Flats, Sheffield</p>
Day 2	Tuesday
Morning	<p>The history of concrete in Britain, and the influence of developing technologies on design and construction</p> <p>Demonstration. Mixing and slump test</p> <p>Lecture. Understanding the problem, research and diagnostics</p> <p>Demonstration. Taking a core sample, carbonation testing, hammer testing, use of Schmidt hammer</p>
Afternoon	<p>Will it stay up? A structural engineer's key questions to ask when working with historic concrete.</p> <p>Case Study: Dudley Zoo. Q&A</p>
Afternoon	<p>Demonstration. Patch repairs, part 1: Cutting out and matching mixes.</p> <p>Practical session. Use of aggregates</p> <p>Chichester Festival Theatre: Concrete repair case study</p> <p>Chichester Festival Theatre: Mock-up Q&A</p>
Evening	Film Show and discussion: Edward James' 'Las Pozas', concrete garden in Mexico
Day 3	Wednesday
Morning	Visit to Chichester to look at a variety of concrete structures and different surface finishing techniques
Afternoon	<p>Film. William Mitchell's Isea Valley Water Authority Building Film. William Mitchell concrete sculpture in the 1960s</p> <p>Case Study: 'Las Pozas' concrete garden, Mexico</p> <p>Demonstration. Placing patch repairs, part 2</p> <p>Students' projects. Those who wish to, to do 5 minutes presentations.</p> <p>Demonstration. Surface finishes, Elephant House, use of acid</p>
Evening	Film Show. <i>Locke</i> . (Optional)
Day 4	Thursday
Morning	<p>Lecture. The chemistry and composition of architectural concrete. The theory behind cathodic protection</p> <p>Demonstration/Practical Session. Surface finishes, part 2: Bush hammering</p> <p>Lecture. Cleaning and surface preparation methods</p>
Afternoon	<p>Demonstration of cleaning and surface preparation techniques</p> <p>Lecture. Conclusion: Considerations for the development and implementation of a philosophy of concrete repair</p>

Non-residential course fee £726

Fully inclusive residential course fee:

Standard room with private bathroom facilities £981

Superior room with private bathroom facilities £1,047

HOW TO BOOK

Please complete one booking form, or copy of form, per person per course and enclose a deposit for each course booked. On receipt of your booking, we will send all the further details you will need for your visit, including the course details and your final payment slip. Travel instructions will be sent to all students.

For further information about the course, please contact the Course Organiser: +44 1243 818219 or

cpd@westdean.org.uk

For further information about booking, please telephone the Bookings Office: +44 (0)1243 818300.

Website: www.westdean.org.uk

Recommended Reading (Catherine Croft):

English Heritage Practical Building Conservation: Concrete (2012), Ashgate Publishing. You will be provided with a copy of this when you arrive at West Dean, but I recommend you try and look at a copy beforehand.

You should all be aware of this excellent bibliography, which is on line and being updated. Because it is so good, I'm not listing a large number of sources here.

Custance-Baker, Alice, Gina Crevello, Susan Macdonald, and Kyle Normandin. 2015. **Conserving Concrete Heritage: An Annotated Bibliography**. Los Angeles: Getty Conservation Institute.

http://hdl.handle.net/10020/gci_pubs/concrete_biblio

This bibliography is an outgrowth of *Conserving Twentieth-Century Built Heritage: A Bibliography* (2nd ed). Its annotated entries are intended to assist those interested in the conservation of concrete by identifying and describing specific resources on the subject. The literature reviewed covers mass, reinforced, cast-in-place, post-tensioned pre-stressed, and precast concrete. It is organized in five chapters AND focused on English-language literature:

- 1) History and Development of Concrete;
- 2) Concrete Deterioration and Damage;
- 3) Historic Concrete Diagnostics, Monitoring, Nondestructive Testing, Investigation, and Assessment;
- 4) Approaches to Conserving Historic Concrete;
- 5) Conservation and Repair of Historic Concrete.

The best brief and accessible guides to the history of concrete and repair method is on the Historic Scotland

website: <http://conservation.historic-scotland.gov.uk/historic-concrete-short-guide.pdf>

<http://conservation.historic-scotland.gov.uk/short-guide-5.pdf>

Farrell, David and Davies, Kevin

Repair and Conservation of Reinforced Concrete - www.buildingconservation.com/articles/allarticles.htm

The Concrete Repair Association

The Route to a successful concrete repair

http://cra.associationhouse.org.uk/cra_index.htm

The Concrete Society

<http://www.concrete.org.uk> this has all the back issues of *Concrete Quarterly* available as downloadable pdfs.

Croft, Catherine *Concrete Architecture*, Laurence King, 2004

Forty, Adrian, **Concrete and Culture: A Material History**, Reaktion Books, 2012.

(to be published in paperback on July 1st 2016)

Calder, Barnabas, **Raw Concrete: the Beauty of Brutalism**, William Heinemann, 2016.