WEST DEAN COLLEGE
ARTS & CONSERVATION

BUILDING CONSERVATION MASTERCLASSES
CONSERVATION AND REPAIR OF STONE MASONRY
B3D07338 24-27 SEPTEMBER 2018 (3 day course)

Course content:
Lectures and theory
Basic geology; how stone is used in traditional buildings; the role of lime in mortars, plasters and renders; basic decay mechanisms of limestone and sandstone; case studies of limestone conservation projects
Practical skills taught on the course
1 Piecing-in or indenting a piece of new stone into decayed masonry
2 Applying and tending a full form mortar repair to decayed masonry
3 Re-pointing ashlar, coursed rubble and core work masonry
Key points
Understanding solid wall construction
Understanding the difference in preparation and use of hot-mixed mortar, putty lime mortar, pozzolanic mortars and hydraulic lime mortars
Selecting lime and aggregates for mortar
Curing and aftercare of mortars
Surface tooling and finishes for masonry and lime work

Please remember to bring work clothes/overalls and shoes/boots for practical sessions. A torch and umbrella may be useful on the short walk to the Auditorium and Ruinette.

Teaching Team:
Course Leader: Nick Durnan trained as a stone mason at Canterbury Cathedral and then studied for a degree in carving and conservation at the City and Guilds of London Art School. After a Churchill Fellowship studying stone conservation in France, Germany and Italy, he trained as a sculpture conservator on the west front of Wells Cathedral. Nick has been a freelance conservator, conservation consultant and carver since 1984 and has worked at many English cathedrals including Exeter, Wells, Salisbury, Canterbury, Rochester and Peterborough.
Tutors: Tom Beattie runs a stone conservation company in Wiltshire.

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

Recommended Reading:
English Heritage Practical Building Conservation: Stone, 2012, Ashgate Publishing
Ashurst J and Dimes F, *The Conservation of Building and Decorative Stone*, 1998
Practical Building Conservation: English Heritage Technical Handbooks – (a) Mortars, Renders and Plasters, (b) Stone, (c) Earth, Brick and Terracotta, 2012-2013
Hill P and David J, *Practical Stone Masonry*, 1995
Clifton Taylor A, *The Pattern of English Building*, 1972.

OUTLINE PROGRAMME

Day 1	Monday
16.00-18.00	Register at Reception Desk
19.00	Dinner
Evening	Welcome talk and introductions. Explanation of course, background of tutors, student introduction. Lecture. Geology, characteristics and use of some common building and decorative stones.
Day 2	Tuesday
Morning	Lecture. Technology of lime a) Traditional and historic practice. Local production, lime burning, slaking lime and mortar mixing. b) Traditional stone construction: facing, through stones and core work.

c) Changes to traditional practice: hydraulic lime, roman cement, portland cement, lime putty mortars, modern hydraulic lime
d) Lime cycle - chemistry of lime: raw materials, burning, slaking, carbonation
e) Selection of lime, aggregates, pozzolans for conservation and repair mortars

Display, explanation and demonstration of pointing
a) Preparing joints for re-pointing
b) Preparing mortar - tools and equipment
c) Placing mortar - tools and protection
Practical hands-on session - pointing
a) Preparing joints for re-pointing
b) Preparing mortar
c) Placing mortar

Afternoon Discussion of repair techniques

a) Viewing the Ruinette and discussing the repair of stone buildings, when to replace, piece-in, tile repair, mortar repair or consolidate, criteria for such decisions, choice of material, surface texture and tooling.

Display, explanation and demonstration of mortar repairs for stone
a) preparing stone
b) armatures and supports
c) design of mortar
d) mixing, placing and curing

Practical hands-on session - repairing stone with mortar
a) preparing stone
b) fixing armature
c) mixing mortar
d) placing first coat of mortar

Day 3 Wednesday

Morning Lecture. How and why stones decay

a) characteristics of stone types - porosity and permeability, pore size distribution, mineralogy, bedding planes, crystal structure.
b) causes of decay i) - salt crystallisation, frost damage, chemical change of minerals, expansion/contraction, water abrasion.
c) causes of decay ii) - poor selection of stone, poor detailing, rusting iron fixings, hard dense mortars, plant growth, lichens and algae, impervious coatings, new stone beside old.
d) durability - careful selection and observing bedding planes, nonferrous fixings, compatible mortars

Display, explanation and demonstration of stone working
a) quarry tools
b) masonry tools and templates
c) carving tools and drawing
d) working a stone face, different tooled finishes

Practical hands-on session – cutting out and repairing stone with stone

a) marking out area to be repaired
b) cutting away stone to be replaced
c) fixing new piece with precision

Afternoon Practical hands-on session - cutting out and repairing stone with stone
a) marking out area to be repaired
b) cutting away stone to be replaced
c) fixing new piece with precision

	Practical hands-on session - repairing stone with mortar a) placing second coat of mortar
Day 4	Thursday
Morning	Lecture. Cleaning stone surfaces a) what is dirt? should it be removed and why? b) cleaning techniques for: soot crusts, algae and lichen, iron and copper stains, graffiti c) abrasion, brushes, water, steam, poultices, chemicals
	Practical hands-on session a) completing cutting out and repairing stone with stone b) completing mortar joints c) completing repairing stone mortar
Afternoon	Lecture - Case studies of recent conservation and repair work at Wilton House and Salisbury Cathedral
	Course review and questions, recommended books, organisations, further courses, HE booklets & HS pamphlets. Issue of certificates and depart.

Non-residential course fee £645
Fully inclusive residential course fee:
Standard room with private bathroom facilities £876
Superior room with private bathroom facilities £936

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 (0)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