

ECVET Earth Building	<b>Repair and conservation: Plaster and building</b>	<b>Unit R common part</b>
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<b>Learning outcomes</b>		<b>Level 3</b>
<b>KNOWLEDGE</b>	<b>SKILLS</b>	
<ul style="list-style-type: none"> <li>- Traditional techniques and materials. Conservation aspects and methods</li> <li>- Causes of damage /decay /collapse: previous intervention, construction, external factors, combination of several factors, humid and structural pathology</li> <li>- Global analysis of a building</li> <li>- Sourcing information on era, history of use and repair</li> <li>- Investigation methods, sampling of original materials</li> <li>- Repair materials</li> <li>- Common and new or regional techniques and technologies for reconstruction, repair, conservation</li> <li>- Maintenance techniques</li> <li>- The order of work, sequence and program of repairs</li> <li>- Documentation of buildings and projects</li> <li>- Site organisation, storage, access, scaffolding</li> <li>- Tools, machinery and equipment, materials, products: selection criteria and sourcing</li> <li>- Historic regulations relating to repairs</li> <li>- Relevant codes of practice/standards for work and materials</li> <li>- Health and safety regulations</li> </ul>	<p><b>Diagnose</b></p> <ul style="list-style-type: none"> <li>- Identify and list previous interventions</li> <li>- Identify and document damage</li> <li>- Take samples</li> <li>- Read plans and calculations</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Make test panels if needed and interpret the results</li> <li>- Calculate quantities, check supplies and prepare materials</li> <li>- Store, make, recover repair materials</li> </ul> <p><b>Preparation of intervention</b></p> <ul style="list-style-type: none"> <li>- Remove damaged, degraded, inappropriate materials</li> <li>- Conserve historical/artistic coatings and surfaces</li> <li>- Prepare surfaces to receive maintenance, repair materials or surface treatment</li> <li>- Secure (propping and fencing) and protect structures according to instructions</li> </ul> <p><b>Intervention</b></p> <ul style="list-style-type: none"> <li>- Use maintenance techniques</li> <li>- Repair with appropriate technique and according to specifications</li> <li>- Choose and apply the appropriate surface treatment</li> <li>- Document the work steps</li> </ul> <p><b>Organisation</b></p> <ul style="list-style-type: none"> <li>- Protect adjoining surfaces</li> <li>- Select and use appropriate tools, machinery and equipment</li> <li>- Organise the work place</li> </ul>	
<b>COMPETENCE</b>		<b>Level 3</b>
<p><b>Decision making process</b></p> <ul style="list-style-type: none"> <li>- Identify risk, distinguish major from minor pathology</li> <li>- Recognise the value of traditional and historic earth structures and clay plaster finishes, and report</li> <li>- For buildings, identify and analyse common damage and determine the appropriate repair technique for minor pathology</li> <li>- For plaster, identify and analyse common damage due to mix, application, wear and tear and determine the appropriate repair technique</li> </ul> <p><b>Planning and organising for own work</b></p> <ul style="list-style-type: none"> <li>- With the materials provided, plan and organise each step involved in the maintenance, repair or surface treatment, according to the specifications and program</li> </ul> <p><b>Execution, quality control and coordination within the earth building team</b></p> <ul style="list-style-type: none"> <li>- Work in accordance with the schedule of works, adjust to general work process on site, instruct Level 1 + 2 workers of the earth building team</li> <li>- Check if all the steps involved conform to the specification and program</li> <li>- Identify problems and report</li> <li>- Control quality of the own work at each step</li> <li>- Control drying of wet walls and report</li> <li>- Ensure your team respects health and safety regulations</li> </ul> <p><b>Communication beyond the earth building team</b></p> <ul style="list-style-type: none"> <li>- Liaise with non earth building specialists on suitable repairs and their application</li> </ul>		

ECVET Earth Building	<b>Repair and conservation: Building</b>	<b>Unit R sub unit</b>
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<b>Learning outcomes</b>		<b>Level 3</b>
SPECIFIC KNOWLEDGE	SPECIFIC SKILLS	
<ul style="list-style-type: none"> <li>- Damage to earthen structures: cracks, loss of material, degradation, deformation, tilting etc.</li> <li>- When to get advice from a structural engineer</li> <li>- Details to prevent water damage, abrasion etc.</li> <li>- Repair techniques: masonry, monolithic systems, others</li> <li>- Repair materials: burnt and un-fired bricks, stones, mortars, fibres, ties, threaded bar, mesh, etc.</li> <li>- Building formwork and frames</li> <li>- Use of gutter, gravel drains, air brick</li> <li>- Finishes, thermal insulation, air tightness, moisture protection</li> <li>- Treatment of openings, floors, edges and top of walls</li> <li>- Installation of services</li> <li>- Propping damaged structures, temporary coverings</li> </ul>	<ul style="list-style-type: none"> <li>- Observe and record the structure's condition and report</li> <li>- Secure, prop structure according to instructions</li> <li>- Install temporary coverings</li> <li>- Observe drying of wet walls</li> <li>- Repair and refurbish with appropriate technique and according to specifications:               <ul style="list-style-type: none"> <li>o Under supervision: repair below /reinforce existing structure</li> <li>o Under supervision: execute horizontal bracing, etc.</li> <li>o Rebuild with appropriate: masonry, monolithic systems</li> <li>o Form a new opening: Insert and fit lintels, plates, etc.</li> <li>o Fill holes and cracks with earth material, masonry</li> <li>o Apply "sacrificial" plasters to remove efflorescence</li> <li>o Connect new and old earth structures and materials</li> <li>o Connect woodwork and earth</li> <li>o Apply the appropriate surface treatment</li> <li>o Chase, build in services</li> <li>o Apply appropriate insulation materials</li> </ul> </li> </ul>	

<b>Criteria and Indicators for the Assessment of Skills</b>		<b>Level 3</b>
Criteria	Indicators	
Diagnose	<ul style="list-style-type: none"> <li>- Existing building material is correctly identified and reported</li> <li>- The causes of damage are correctly identified and reported</li> </ul>	
Preparation of intervention	<ul style="list-style-type: none"> <li>- Inappropriate material has been removed</li> <li>- The surfaces to be repaired are clean, wetted/dried, and fixed</li> <li>- The stability of the wall is ensured (propping, etc.)</li> <li>- Adjoining zones are protected from dirt and shocks</li> </ul>	
Materials	<ul style="list-style-type: none"> <li>- Recycled material is not contaminated</li> <li>- Repair material is compatible with the existing fabric</li> <li>- Repair material corresponds to specifications (structural, aesthetic)</li> </ul>	
Intervention	<ul style="list-style-type: none"> <li>- Bond and alignment are robust and correct</li> <li>- The joint between old and new material is solid and tight</li> <li>- The appearance conforms to the brief</li> <li>- The intervention doesn't create new problems</li> </ul>	
Soffits, lintels, new openings	<ul style="list-style-type: none"> <li>- Appropriate measures are used for propping, controlling forces, etc.</li> <li>- The bearing surfaces are correctly prepared</li> <li>- Soffits are correctly executed</li> <li>- Lintels are correctly placed and fixed</li> </ul>	

Ensure that standards of work and materials comply with relevant codes of practice and to current standards.

ECVET Earth Building	<b>Repair and conservation: Clay Plaster</b>	<b>Unit R sub unit</b>
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<b>Learning outcomes</b>		<b>Level 3</b>
SPECIFIC KNOWLEDGE	SPECIFIC SKILLS	
<ul style="list-style-type: none"> <li>- Techniques for maintenance and touching up</li> <li>- Common damage: powdery or sandy surface, cracks, stain, spalling, scratches and holes</li> <li>- Common repair techniques: closing cracks by floating and/or with use of new material; removal of damaged area and replacing with new, if necessary adding reinforcing mesh or key</li> <li>- Accurate touching up</li> <li>- Finished plaster quality to achieve the required standard</li> <li>- Options for final surface treatments and coatings onto clay plasters : fixatives, paints, plasters with other binders, tiles, glass, wood, wallpaper</li> <li>- External clay plaster and renders onto earthen walls</li> <li>- Composition and application of clay slip, clay paint and washes</li> <li>- Use of lime onto a clay plaster background and issues of bonding and carbonation</li> <li>- Composition and application of lime plasters and paints</li> <li>- Basic principles of sustainable building in relation to surface treatments</li> </ul>	<ul style="list-style-type: none"> <li>- Prepare the repair mix according to the instructions</li> <li>- Repair areas of localised damage</li> <li>- Make joins with repair plaster as seamless as possible</li> <li>- Demonstrate paint effects onto sample clay plaster boards</li> <li>- Paint clay plaster with clay and lime based paints and washes</li> <li>- Prepare and apply fixatives</li> </ul>	

<b>Criteria and Indicators for the Assessment of Skills</b>		<b>Level 3</b>
Criteria	Indicators	
Preparation	<ul style="list-style-type: none"> <li>- The damaged plaster has been removed</li> <li>- Background is prepared and ensure a suitable key</li> <li>- The edges of the remaining plaster are cut at an angle and the depth of the repaired area is uniform</li> <li>- The cut edge has been sufficiently moistened</li> </ul>	
Quality of the repair plaster	<ul style="list-style-type: none"> <li>- Mix conforms to the instructions</li> </ul>	
Workability of repair plaster	<ul style="list-style-type: none"> <li>- The consistency is appropriate for manual application - by float, trowel, thrown or by hand</li> </ul>	
Quality of the repaired surface	<ul style="list-style-type: none"> <li>- The surface is homogenous</li> <li>- The colour and the texture of the repair replicate the original surface</li> <li>- The join between new and old plaster is seamless</li> </ul>	
Quality of the fixative	<ul style="list-style-type: none"> <li>- The solution is not lumpy</li> <li>- The dilution is sufficient according to the binder</li> </ul>	
Workability of the clay or lime paint	<ul style="list-style-type: none"> <li>- The consistency is appropriate according to its paint layer</li> </ul>	
Quality of the painted or treated surface	<ul style="list-style-type: none"> <li>- Paint or fix is homogenous</li> </ul>	

Ensure that standards of work and materials comply with relevant codes of practice and to current standards.