

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

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

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

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

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

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

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