

WP5 Education and Economic Promotion

Guideline “Training and education of craftsmen within the energy-saving refurbishment of historical buildings”

Our target is to create uniform guidelines for craftsmen, according to which they will be educated to refurbish listed buildings in order to make them more energy efficient.

The research produced in the course of Co2ol Bricks has already developed a range of learning packages that prescribe certain tools and practices that should be adopted in order to ensure that listed buildings are renovated without changing their historic character. The accumulated knowledge in this area has to be transmitted among the identified target groups and provoke their interest in the matter. In order to achieve this, we should aim to establish a common certification scheme which will provide qualified workers with a certificate that will enable only certificate-holders to exercise refurbishment works on a listed historic building. More details about this idea are described in another report on a certification scheme.

The proposed learning packages below should serve as a basis to the creation of common curricula that will be put together for specialised craftsmen.

Overview of possible and needed learning packages

The here proposed and described learning packages address professionals at several levels of planning, supervision and construction work and might be suitable for different target groups. This selection of topics and learning contents covers the most crucial issues but of course not everything. Unfortunately not all of them can be dealt with in learning modules developed in Co2ol Bricks but this is a guideline to emphasize the urgent need to acquire these skills.

The following list underlines the comprehensive field of various crafts.

	Learning package	Learning content	Target group	Crafts	Covered by project
1.	Cultural Heritage and Historic Constructions				
1	Introduction into cultural heritage	cultural heritage, building typology, legal framework, reference to practice	apprentices, skilled workers, building supervising staff, planners	all	yes
2	Historic masonry	history of brick(work), building materials, comparison to modern ones, tolerance with modern materials	apprentices, skilled workers, building supervising staff, planners	bricklayers	yes
3	Damages of historic masonry	damage patterns and causes, interrelations, holistic approach of demonstration buildings	apprentices, skilled workers, building supervising staff, planners	bricklayers	yes
4	Refurbishment of historic masonry	suitable and tolerable techniques, risky techniques, learning from practice examples	apprentices, skilled workers, building supervising staff, planners	bricklayers	yes
5	Analysis of weak points <i>- workshop</i>	physical basics, overview of possible weak points, assessment of damages, possible treatments or/and improvement measures	apprentices, skilled workers, building supervising staff, planners	all	yes
6	Cellar and outer wall base	protection against dampness	apprentices, skilled workers, building supervising staff, planners	bricklayer, others	no
7	Connection to interior walls	connections, thermal bridges	apprentices, skilled workers, building supervising staff,	bricklayers, others	no

			planners		
8	Connection to ceilings (concrete, beam floor)	connections, thermal bridges	apprentices, skilled workers, building supervising staff, planners	bricklayers, concrete workers, carpenters	no
9	Metal sheeting, covering of masonry or natural stone components of a facade	Protection of components, connections	apprentices, skilled workers, building supervising staff, planners	plumbers	no
10	Overlap windows and doors in masonry	Renovation or replacement, building physics and interrelations, function layers	apprentices, skilled workers, building supervising staff, planners	bricklayer, window installers, plasterers	no
11	Paint and varnish work	Repairs, coating	apprentices, skilled workers, building supervising staff, planners	painters, varnishers	no
12	Concrete maintenance	Repairs, re-profiling of surfaces	apprentices, skilled workers, building supervising staff, planners	concrete workers, painters, stucco plasterers	no
13	Timber beam construction connected to exterior masonry walls	Moisture protection, thermal bridges, harmful fungi	apprentices, skilled workers, building supervising staff, planners	carpenters, bricklayers, plasterers, stucco plasterers, dry-construction workers	no
2.	Energy Efficient Refurbishment Measures and Technical Services				
1	Introduction and overview of energy efficient measures	suitable and tolerable techniques, practice examples, catalogue of techniques, decision making process using practice examples	apprentices, skilled workers, building supervising staff, planners	bricklayers, plasterers, drywall builders, others	yes
2	Internal insulation with mineral foam boards	properties of material, processing,	apprentices skilled workers	bricklayers, plasterers	yes

		physical basics			
3	Internal insulation with calcium silicate boards	properties of material, processing, physical basics	apprentices skilled workers	bricklayers, plasterers	yes
4	Energy efficient refurbishment of roof construction from inside - <i>theory</i> -	history of roof constructions, materials, carpentry, dry construction work	apprentices, skilled workers, building supervising staff, planners	carpenters, drywall builders	yes
5	Energy efficient refurbishment of roof construction from inside - <i>practical unit</i> -	materials, carpentry, dry construction work	apprentices, skilled workers	carpenters, drywall builders	yes
6	Energy efficient refurbishment of roof construction from outside - <i>theory</i> -	history of roof constructions, materials, carpentry, dry construction work	apprentices, skilled workers, building supervising staff, planners	carpenters	yes
7	Energy efficient refurbishment of roof construction from outside - <i>practical unit</i> -	materials carpentry, dry construction work	apprentices, skilled workers	carpenters	yes
8	Air tightness and indoor climate	practice examples from WP 4, interrelations between building envelope and indoor climate	building supervising staff, planners	all	yes
9	Overlap sloping roof-exterior wall in masonry	connection, thermal bridges, function layers	apprentices, skilled workers, building supervising staff, planners	bricklayers, plasterers, carpenters, drywall builders, roofers, plumbers	no
10	Heating systems	Various potential methods	apprentices, skilled workers, building supervising staff, planners	installers of heating	no
11	Air ventilation systems	Various potential systems, duct routes	apprentices, skilled workers, building	installers of ventilation systems	no



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			supervising staff, planners		

3. Quality Management and Work Planning					
1	Quality assurance and work planning	responsibility as a craftsman responsibility as a company coordination communication controlling (self-)discipline work planning: filling gap between planning and execution work product choice	apprentices, skilled workers, building supervising staff, planners	all	yes
4. Market Opportunities					
1	Market opportunities for building companies	market development in the BSR, working abroad and with international partners	building companies	all	yes

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