

WP5 Education and Economic Promotion

Certification scheme

The preservation of heritage buildings requires a high level of professional know-how on one hand, and special awareness of the historic and cultural value of listed buildings on the other hand. Furthermore, communication and joint decision making with experts in the field of cultural heritage buildings are essential for the co-ordination as well as the success of any measure in and around a cultural heritage building.

This report will give examples for the learning contents of vocational education and training as well as the advanced education of craftsmen. To launch a certification scheme we need a catalogue of criteria of knowledge, skills, and experience that professionals respectively craftsmen have to fulfil before they are allowed to work on historic buildings.

In addition to this report you will find more information how to launch a certification system in the report *Business plan*.

The following pages compass learning packages according to the various trades.

Criteria catalogue for a planned certification system – Learning contents according to the required add-on knowledge about historic buildings

Learning package Bricklayer I: Renovation

1. Introduction into the cultural heritage of buildings

a. Learning module 1: Conserve and maintain cultural heritage buildings

- What is a cultural heritage building?
- Which types of cultural heritage buildings we have to regard?
- Which is the main goal of the cultural heritage preservation?
- What means cultural heritage in general?
- Overview of building types throughout their date of erection
- Worth knowing

b. Learning module 2: Cultural heritage preservation and the legal framework

- How are the rules for the cultural heritage preservation in Germany?
- When a building becomes cultural heritage?
- What are the typical features of a cultural heritage building?
- Difference between protected/listed and acknowledged cultural heritage building
- Who is responsible for the cultural heritage preservation in Germany?
- The cultural heritage preservation in Hamburg
- Der Denkmalschutz in Hamburg
- Cultural heritage preservation and energy efficiency
- Financial support of the maintenance of cultural heritage buildings

2. Historic brick masonry

a. Learning module 1: Materials, production and history

- The brick: A definition
- The brick and its ingredients
- Overview of brick types
- The brick as building material
- Production of bricks: traditional and modern
- History of bricks

b. Learning module 2: Mortar joints, sizes and masonry bond

- Masonry mortar
- Mortar joints
- Sizes of bricks
- Masonry bonds

3. Damages of brick masonry

a. Learning module 1: Damages, causes and renovation opportunities

- Salinity and salt efflorescence
- Mechanical damages such as shelling
- Moisture damages and frost damages
- Damages because of natural plant cover at the surface
- Cracks caused by settlement of a building
- Damages because of improper renovation
- Cracks due to thermal tension
- Practice examples

4. Renovation of brick masonry

a. Learning module 1: Cleaning, renovation of bricks and mortar joints

- Pre-analysis and planning of measures
- Cleaning
- Replacement of bricks
- Renovation of cracks in bricks and bond
Renovation of mortar joints
- Characteristic of historic materials and modern ones
- Anchorage of double-leave masonry
- Suggestions for renovation measures
- Practice examples

Criteria catalogue for a planned certification system – Learning contents according to the required add-on knowledge about historic buildings

Learning package Bricklayer II: Energy efficient retro-fit

1. Introduction and overview

a. Learning module 1: Retro-fit practice appropriate for cultural heritage preservation

- Players involved in the building process
- Typical weak points of historic buildings
- Common refurbishment measures
- Appraisal and analysis

b. Learning module 2: Typical damages of historic buildings

- Frequent damages around a building at various components and materials
- Insulation materials and methods

2. Inside insulation of outer walls with mineral foam boards

a. Learning module 1: Introduction

- Insulation technique
- Building physics coherencies
- Inside insulation measure with mineral foam boards
- Knowledge of materials and their application

b. Learning module 2: Handicraft practice

- Hands-on skills
- From planning into practice

3. Inside insulation of outer walls with calcium-silicate boards

a. Learning module 1: Introduction

- Building physics coherencies
- Interior insulation systems
- Knowledge of materials and their application
- Experts discuss: advantages and disadvantages
- Products in comparison to each other
- Practice examples

Criteria catalogue for a planned certification system – Learning contents according to the required add-on knowledge about historic buildings

Learning package Carpenter and Roofer: Energy efficient refurbishment of a sloping roof construction

1. Energy efficient refurbishment of a sloping roof construction from inside

a. Learning module 1: Planning and preparation of work

- Health and safety at work
- Building physics conditions
- Vapour barrier
- Planning of work
- Preparation of an architectural drawing
- Refurbishment concept

b. Learning module 2: Carrying out the handicraft work

- Preparation of the working place
- Timber construction work
- Insulation work
- Cladding from inside
- Assessment of workmanship

2. Energy efficient refurbishment of a sloping roof construction from outside

a. Learning module 1: Planning and preparation of work

- Health and safety at work
- Building physics conditions
- Humidity active vapour barrier
- Planning of work
- Preparation of an architectural drawing
- Refurbishment concept

b. Learning module 2: Carrying out the handicraft work

- Preparation of the working place
- Timber construction work
- Insulation work
- Roofing
- Assessment of workmanship

Criteria catalogue for a planned certification system – Learning contents according to the required add-on knowledge about historic buildings

Learning package Construction planning and supervising: Airtightness

1. Airtightness

a. Learning module 1: Knowledge of materials and products

- Overview of different materials and products
- Application methods

b. Learning module 2: Exercise about application examples

- Application opportunities of special products for airtightness
- Assessment of the applicability of special products for historic buildings in comparison to new buildings

Criteria catalogue for a planned certification system – Learning contents according to the required add-on knowledge about historic buildings

Learning package Construction planning: Pre-analysis of weak points

1. Analysis of weak points

a. Learning modules 1: Theory basics

- Moisture in masonry
- Salinity in masonry
- Causes of moisture damages
- Causes of salinity damages

b. Learning module 2: Damage ascertainment

- Assessment of masonry and damage ascertainment
- Site visit for the damage ascertainment and questioning of people from site
- Pre-analysis in advance
- Analysis plan
- Methods and devices for the building analysis for moisture and salinity damages
- Ascertainment of analysis findings

c. Learning module 3: Typical damages at historic buildings

- Cross-trades identification of damages
- Typical damages at the different building components and materials
- Assumption of the possible causes of the damages

d. Learning module 4: Exercise to learn recognise damages, discussion of possible causes and refurbishment measures

- Cross-trades identification of damages
- Typical damages at the different building components and materials
- Assumption of the possible causes of the damages



Contact details

Certification scheme idea prepared by:

Jens Schwarz

Project Manager, Ausbildungszentrum-Bau in Hamburg GmbH (AZB)

Schwarzer Weg 3, 22309 Hamburg

Tel.: +49 (40) 639 003-18

E-mail: Jens.Schwarz@azb-hamburg.de