

# BUILD UP Skills CrossCraft

Qualification scheme for cross craft trainings of professionals in the construction industry

**Austria**



# Status in Austria

## Key Findings



Especially in the **construction of nearly-zero energy buildings** there is a **lack of knowledge, beyond the own expert knowledge of blue collar workers**. This results in construction faults (e.g. dealing with vapour barriers, installation of windows, etc.).

Raises the question: **How a highly airtight building envelop can be guaranteed!**

→ **Cross-craft knowledge is necessary**, which must be acquired in special courses.



# BUILD UP Skills CrossCraft

## Objectives



The objective of “**BUILD UP Skills CrossCraft**” was to develop a qualification scheme for **cross craft trainings of professionals** in the construction industry (e.g. foremen, craftsmen,...).

By providing this qualification scheme, the project aimed to **improve the competence of blue-collar workers** in the Austrian construction industry, necessary for the **achievement** of the **nearly zero energy building** standard.

To warrant the large-scale and long-term approach, the qualification schemes were **implemented, monitored and evaluated in pilot courses** all over Austria.



# BUILD UP Skills CrossCraft

## New CrossCraft Trainings



Based on the key findings of BUILD UP Skills Austria the following new courses were developed, implemented and evaluated during BUILD UP Skills CrossCraft:

### **CrossCraft training on construction site – on-site training (duration: 3 to 4 hours)**

Short on-site trainings based on „frequently made mistakes“ inline with the implementation of a blower a door test.

### **Basic CrossCraft module – off-site training (duration: 16 hours / two days)**

- Understanding of the importance of low-energy building standards
- Better understanding of the interaction of crafts
- Avoiding poor workmanship and its impacts

### **Advanced training modules – off-site trainings (duration: 8 hours / one day)**

- Techniques for renovation of old buildings
- Installation of renewable energy systems

### **Compact CrossCraft module – off-site training (duration: 32 hours / four days)**

Content of the Basic CrossCraft module  
+ Techniques for renovation of old buildings  
+ Installation of renewable energy systems

### **On-site Quality Coach training – off-site training (duration: 24 hours / three days)**

Focus: cross-craft understanding, quality assurance in terms of internal and legal aspects. To guarantee the implementation of high quality constructions.

A flyer for BUILD UP Skills CrossCraft. It features a photograph of two construction workers in hard hats and safety vests, one in blue and one in white. The text on the flyer includes the logo, a subtitle "Austrian vocational training and further education initiative for the optimal implementation of energy efficiency and renewables in the construction sector.", a main headline "Top professionals for excellent buildings", a sub-headline "High quality constructions with BUILD UP Skills CrossCraft. Train your staff on-site", and a list of benefits under the heading "Compact knowledge transfer through nationwide CrossCraft training modules:". The website "buildupskills-crosscraft.at" is listed at the bottom, along with logos for partners like E.ON, BAW, and others.

**BUILD UP Skills CrossCraft**

Austrian vocational training and further education initiative for the optimal implementation of energy efficiency and renewables in the construction sector.

**Top professionals for excellent buildings**


High quality constructions with BUILD UP Skills CrossCraft.  
Train your staff on-site

**Compact knowledge transfer through nationwide CrossCraft training modules:**

- ① CrossCraft training on your construction site
- ② We build energy efficiency-basic & compact CrossCraft course modules available
- ③ Become an on-site quality coach
- ④ Advanced training modules: techniques for renovation of old buildings & installation of renewable energy systems

[buildupskills-crosscraft.at](http://buildupskills-crosscraft.at)

Partners: E.ON, BAW, innovative public, etc.

A photograph showing four men standing in a room. In the background, a red fabric structure is set up, likely for a blower door test. A large black fan is visible in the foreground, and a laptop is on a small table. The men are dressed in work clothes and jackets. The room has a concrete floor and a white wall.

The **airtight envelop** is an **essential part** of Nearly Zero Emission Buildings. Frequently made mistakes can be easily shown up by the implementation of a blower door test.

**The blower door test is a key element of the developed CrossCraft modules.**

# On-site CrossCraft module

## Process steps



**Step 1** – Preparation of the blower door test.

**Step 2** – Checking penetrations.

**Step 3** – Explore the leaks and discussions about the possible causes and how to seal them.

**Step 4** – Presenting and discussing the types of plugs and sealing-materials.



# Implementation of pilot courses

Final status



	<b>Aim of the project</b>	<b>Performed</b>
<b>On-site CrossCraft Module</b> Duration: 3 to 4 hours	4	10
<b>Basic CrossCraft Module</b> Duration: 16 hours	1–3	3
<b>Advanced Modules</b> Duration: 8 hours	2	2
<b>Compact CrossCraft Module</b> Duration: 32 hours	1–3	2
<b>Quality Coach Trainings</b> Duration: 24 hours	1–3	3
<b>Total</b>	<b>9–15</b>	<b>20</b>

**Mission accomplished**



# Participants of pilot courses

## Concrete numbers





# Challenges



## Challenges

- Strong market demand existed only for the short on-site trainings.
- The implementation of the two to four days off-site trainings proved to be exceptionally difficult all over Austria.
- A large number of already advertised courses had to be cancelled due to a lack of registrations.

## Reasons

- The impacts of the economic crisis on the Austrian construction sector.
- Right now the construction sector is a very sensitive market.
- Construction companies reduce their fixed employees to a minimum (to reduce fixed costs). → SMEs are less likely to allow their workers to attend further training courses as they need them continuously on-site.



# Success stories & lessons learned



## Success story

The short on-site trainings have a strong market demand. **10** on-site trainings could be implemented easily.

## Lesson learned

- The successful implementation of the two day CrossCraft training modules based on the “direct marketing” of the new trainings by strengthening bilateral exchanges with the SMEs.

## Success story

Content and structure of the two days CrossCraft training modules showed up to be very attractive for SMEs. Education providers will integrate the two day Basic CrossCraft training module in their training offers.

## Lessons learned

- Although the content of the Quality Coach training is very interesting for SMEs, SMEs are still very reserved in booking a training over three days (sensitive market). Discussions with the Austrian labor market service are ongoing to integrate this training module in their training offers.

# Success stories & lessons learned



## Lesson learned

- Although the content of the four days CrossCraft Compact course is identified as highly relevant, the implementation of voluntary training over four days is extremely difficult in Austria right now.

## Success story

- The integration of the training scheme of the four days CrossCraft Compact course in the already existing trainings schemes for general foreman and timber constructors is successfully ongoing.
- The content of the four days CrossCraft module will probably get a fundamental part of already existing training schemes in Austrian vocational schools.



# Partners & contact



## Coordinator

- **Austrian Energy Agency (AEA)**  
Mariahilfer Straße 136, 1150 Vienna, Austria  
[www.energyagency.at](http://www.energyagency.at)  
Contact person: Mr. Georg Trnka  
([georg.trnka@energyagency.at](mailto:georg.trnka@energyagency.at))



AUSTRIAN ENERGY AGENCY

## Partners

- **Styrian Energy Agency**  
Nikolaiplatz 4a/I, 8020 Graz, Austria  
[www.lev.at](http://www.lev.at)
- **17&4 Consulting Ltd. (17&4)**  
Mariahilfer Straße 89/22, 1060 Vienna, Austria  
[www.17und4.at](http://www.17und4.at)
- **innovative buildings Austria**  
Seidengasse 13/3, 1070 Vienna, Austria  
[www.innovativegebaeude.at](http://www.innovativegebaeude.at)
- **Building Academy Salzburg (BA Sbg)**  
Moosstasse 197, 5020 Salzburg, Austria  
[www.sbg.bauakademie.at](http://www.sbg.bauakademie.at)



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# Basic & Compact CrossCraft modules

## Key elements



### WHY?

- The airtight envelop is an essential part of the NZEB.
- Cutting points between building envelope and building equipment (heating, ventilation and air conditioning, HVAC) are error-prone.
- Fail-safe constructions of Nearly Zero Emission Buildings (NZEBs) request perfect cross craft cooperation.

### WHAT?

- Searching for frequently made mistakes inline with the implementation of a blower door test.
  - Recognition of optimization opportunities and ways to improve the process.
- The avoidance of frequently made mistakes is shown up practically by case examples. Topics: airtightness, thermal bridges, external wall, windows, balcony,...

### WHO?

Foreman, brick layer, carpenter, plumber,...

12/12/16



# Techniques for renovation of old buildings

## Advanced module



### WHY?

Knowledge of the specific physical building conditions of old buildings is needed to overcome demanding challenges (thermal bridges, humidity,...).

### WHAT?

- Reasons for the renovation of old buildings, total and partly renovation concepts, specific physical building conditions of old buildings , methods to investigate the existing situation in an old building.
- Identification and evaluation of thermal bridges.
- External and internal insulation possibilities.
- Possibility of an airtight envelope in an old building.
- Ex-post implementation of air conditioning systems.

### WHO?

Construction supervisor, foreman, brick layer, carpenter, plumber,...



# Installation of renewable energy systems

## Advanced module



### WHY?

Innovative (renewable) energy systems and HVAC-systems operate only efficient if all crafts are aware.

### WHAT?

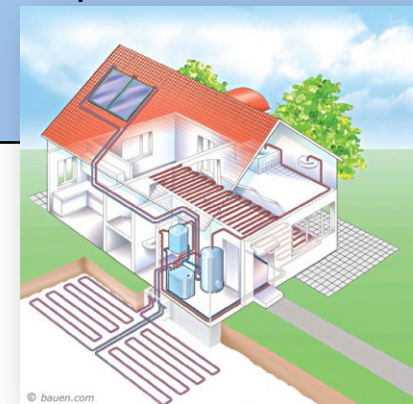
Training of basic principals to ensure high quality installations of innovative (renewable) energy systems and HVAC-systems .

Topics:

- Working with check lists to ensure a high quality installation of building equipment
- Floor heating , thermo active building systems, solar systems, heat pumps,...
- The way to high energy efficiency & comfort
- Avoiding Frequently made mistakes

### WHO?

Construction supervisor, foreman, brick layer, carpenter, plumber,...



# Quality Coach Training – off-site training

## 24 hours / three days



### WHY?

- Assurance of a high quality and smooth construction process.
- Reduction of construction faults and damages.
- Experienced craftsman are trained to “Quality Coaches”.

### WHAT?

- Airtightness and avoidance of thermal bridges.
- Optimal integration of windows and sun shields.
- The “Quality Coach” as a cross craft interface between the crafts.

### WHO?

Craftsman with long practical experience – construction supervisor, foreman, brick layer, carpenter, plumber,...

