ConClip

Course Implementation Handbook

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Lifelong Learning Programme

Content

Introduction – Where to use ConClips?

ConClips are educational video clips explaining skills needed to avoid most frequent failures in passive house building. They are an audiovisual tool explaining know-how in a quick, ostensive way.

The *ConClip course implementation handbook* serves as a document on the didactical approach and the implementation methodology how to integrate these clips e.g. in vocational training, higher education and further training for adult learners. As ConClips should be an easily accessible tool for explanation, the possibilities to implement these videos even go beyond “classical” teaching situations.

So, this implementation handbook should not just serve teachers and instructors in a common sense, but also to e.g. foremen and supervisors responsible for the working procedure on the site. For those persons who can utilise ConClips with a didactical aim – explaining skills (and in addition to it: knowledge) necessary for passive house building – the umbrella term “mediators” will be used.

As those mediators need additional information and teaching material of different extent, the ConClip course implementation handbook is a guideline on how to use these educational video clips within existing courses: Out of this paper, specific teaching material for each of the videos and its content is developed. Further, it pinpoints strategies how to utilise ConClips in contexts of mediation differing from teaching as usual.

To summarize the possibilities where ConClips can be implemented by different mediators:

- In a “classical” ex cathedra teaching environment – within existing courses of training centres and vocational schools for construction businesses.
- Amid the working process of a site by supervisors and other responsible persons, where it is necessary to react immediately at a worker’s gap of knowledge and skills.

ConClips are a fast instrument to help explaining the way how to set the right steps in the construction sector. Additional information material as suggested in this course implementation handbook is needful so that the videos evolve a lasting effect in building up skills.

ConClips should serve as an aid for workers to fill skill gaps and achieve the performance standards required. When implemented in courses, it is important that in the end there are learning outcomes which are provable within ECVET, the European Credit System for Vocational Education and Training.

Learning environments – For whom are ConClips made?

One main purpose of ConClips is that they can be integrated in various situations of knowledge and skills transfer. The target groups include learners as well as various teaching personnel, which has been summarized by the umbrella term “mediators”.

Depending on the learning environment, different kinds of additional learning material is needed to make ConClips useful and functional. By distinguishing the different kinds of teaching functions, the following learning environments can be defined:

1. Vocational education / training for skilled workers; for them, ConClips serve as a part of the teaching material.
2. Education / training for experts and managers (Employers / Site Supervisors / Site Foremen) and vocational training for Green Building Auditors (DGNB, BREEAM etc.). For these “mediators”, ConClips serve as a tool for learning as part of the explanation in the working process, and the course implementation handbook gives simple didactic instructions to them.
3. Further education for teachers / instructors; this group needs more complex didactic instructions how to implement ConClips in their courses.
4. For in-house-training of construction companies training their own personnel; here, the teaching material for workers as well as simple didactic instructions for “mediators” can be applied.
5. For (unskilled) workers using ConClips e.g. on the site, quick ad-hoc-explanations & simple guidelines should be accessible on the website subsequent to watching the video.

If we now summarize the extent of teaching material which is to be developed for each of the videos and which should serve for the differing learning environments, we can outline following three “levels”:

1. Easily accessible basic material, helpful also for (unskilled) workers using ConClips autonomously. This basic material should contain
   - a brief summary of the workflow steps shown in the video
   - a highlight on the most important terms (keywords) occurring within the workflow
2. Material for experts and managers as defined in point 2 above is based on the same topics – workflow steps and keywords. In addition, there are simple didactic instructions how to accomplish the standards required showing the video with additional material.
3. For teachers and instructors, more complex didactic and methodology is at the disposal, mainly to underline the specific content contained in the videos and how to integrate supplementary information.

Videos – Specific didactical approaches of audiovisual media

We have described various extent of didactic demands – dependent on the situation in which ConClips are presented. Before explicating these demands, it will be necessary to explain the very quality of ConClips in more detail.

When describing ConClips, it is useful to attend to specific properties of audiovisual media. Although film and video have been used for teaching purposes over decades, it seems to be necessary to make the mediators working with ConClips aware which instruments are used in videos for transporting content – especially as these mediators may have different levels of experience how to use audiovisual media for didactic purposes.

Therefore it is necessary to make understandable **which elements are specific for ConClips' design** (and why they are implemented that way):

- Each of the singular ConClips is focussing on one detail in passive house building, e.g. putting insulation on walls or mounting windows.
- ConClips' length is three minutes: Relevant information has to be concentrated in a concise form
- ConClips are based on three medial corner stones:
    1. **Image**: The procedure of a workflow is filmed, concentrating on the specific issue of one film – e.g. showing how to put insulation on walls properly
    2. **Voice-over**: The off-voice describes in short, simple sentences the steps of workflow shown in the video, accentuating the most important details which have to be considered to avoid defects
    3. **Text inserts**: Crucial technical terms and most important details are in addition highlighted through text inserts

Ad 1. Image

The setting for the filming is a model in scale 1:1. It would be too demanding filming on an "authentic" site without a huge team, for it is very important to highlight important details, also by filming them in close-up view. Still, a realistic site's environment was chosen, with a "typical" site worker as protagonist who is performing the task (e.g. mounting insulation panels). This scenario provides the target group a high grade identification with the situation – literally and in the figurative sense. From the didactical aspect it is important to illustrate how to carry out the proper work steps, and it is good if the viewer can identify (with) the place as well as (with) the acting person.

The most important didactic aim of the film is to show solutions, i.e. making target groups understand by visualising the way to do it right. For the dramaturgy, three elements have to be emphasised:

- The video editing showing the workflow in a comprehensible way and “leading” the viewer through the story
- Close-up views accentuating relevant details and tricky work steps
- Repetition of about three most important issues at the end of the video

A site worker as protagonist and point of identification

Close-up views make relevant details visible and understandable

For the viewers’ didactical backing, the teaching person / mediator can ask the viewers to repeat the most important steps of the workflow shown.

Ad 2: Voice-over and other audio elements

Spoken language is such a basic, commonly accepted level of information transfer that it was important to incorporate it in the ConClip production. As those should also serve unskilled workers with low education level, it is the more important to keep the information very short and simple, just giving the most relevant descriptions of the plot seen in the video, including further information like introducing some most relevant “keywords” – for example *thermal bridges* or *airtightness*.

Technically, it is very important to have the spoken language in excellent audio quality, otherwise the viewer's concentration will not be kept up. Besides, presentations in training course rooms with many people as well as showing the ConClips at a building site demand good audio quality.

ConClips do not use background music, which is quite often packed in similar kinds of presentation video. According to psychology of perception, the original sound of the shown scene is better to keep the action in mind than musical background decoration without dramaturgic purpose. Music also would not be helpful for concentrating on spoken words.

A short jingle in the beginning and in the end is set to make ConClips recognizable also in sound.

For the viewers' didactical backing, the teaching person / mediator can use the voice-over text in written form as basis for repeating the steps of the workflow.

Ad 3: Text inserts and other visual elements

For underlining the most important steps within the working procedure as well as the most important technical terms resp. keywords, for instance *thermal bridge*, inserts are used. Technically, it is important that those inserts are big enough so that they can also be read well on small screens like smartphones.

For the most relevant immigrants' languages as Croatian, Polish, Serbian and Turkish, the technical terms can be inserted bilingual, e.g. Turkish and German, which puts the viewers in the position to learn keywords in the language of the country where they are working.

Other visual elements are for instance simple drawings showing that insulation boards have to be placed shifted.

Inserts describing how to set an action properly

The blue line illustrates the proper procedure – in this case that insulation boards have to be placed shifted

For the viewers' didactical backing, the teaching person / mediator can enhance information about the keywords, for instance by explaining the physical background of thermal bridges or the consequences of failures when installing the insulation. The small number of keywords occurring in each video gives a good structure and guideline for concentrated further information. In a final sequence of the video, about three most important keywords are repeated, and they function as a framework for developing the teaching material for the singular videos.

Accessibility

One Central Message for the mediators working with ConClips is that they do not just deal with a mere teaching video: ConClips are made the way that they can be used as a multi-purpose new media tool.

They can be defined as a new media tool because of at least two main characteristics:

1. Direct source for further information

The website where ConClips are embedded in (www.conclips.eu) will give opportunity to find directly further information about the topic the singular video is about: There will be downloads in the video's language as well as hyperlinks to further information.

The videos themselves function as modules, highlighting single aspects of skills needed when building passive houses.

2. General accessibility

Technical accessibility: ConClips are available via web and conceived to be used with various media: The videos have to be capable to impart knowledge on a 10' smartphone screen as well as they have to fulfil the technical requirements to be screened large-scale. That demands specific approaches on the level of dramaturgy and video aesthetics which have been described before.

Accessibility for various target groups: One of the characteristics of ConClips is that they profit from the high accessibility of new media. To take advantage of that general accessibility, it is important to keep the information on the site where ConClips can be recalled decided low-threshold: The task is not to deepen an existing knowledge gap by presenting too sophisticated contents. An aim of the website would be to make also unskilled workers who go to the site curious.

In any case, ConClips are conceived to be a tool which workers can access even outside of some course context.

So it is very important that the mediators (teachers / supervisors) communicate to the learners / workers that they can later use ConClips themselves – as an easily accessible backup for quick information on skills needed for passive house building in special and for workaday life in general.

Matrix

Each of the ConClips imparts specific skills, and it is necessary that one can quickly find the right clip and material for a specific task. For that, a matrix is being developed in the process of producing the ConClips. Within this matrix the videos can be defined by three kinds of categories…

1. The key issue of the particular video describing a work step – in case of ConClip1 it is *Mounting Insulation Boards*
2. Central terms - – in case of ConClip1 this is *Thermal Bridges*
3. Defining for which kind of job profiles within the construction and subconstruction sector the clip is especially useful.

One video clip can also cover several categories within these three parameters.

Goals in Vocational and Educational Trainings

Beyond easy accessibility, it is most important that ConClips serve as a tool which helps workers to fill skill gaps and – when implemented in existing vocational training and education – achieve provable qualification. Within the quite informal ad-hoc implementation of ConClips at the building site, the learning outcomes will have to be approved directly by the site supervisor. For teachers and instructors, the videos and the accessory teaching material are a more complex learning input corpus.

The very goal is to have learning outcomes: At the end of the learning process, the worker resp. trainee will have to proof to have achieved the performance standards required by showing that he or she can implement the learning input in practice. Within formal trainings, this learning output can be verified by an exam, which can be valued within ECVET, the European Credit System for Vocational Education and Training.

Workflow Steps and Keywords – Cornerstones of the didactical approach

As already mentioned in the chapter about the *specific didactical approaches of audiovisual media*, we can define two cornerstones for a didactical approach to ConClips which will be applied to the teaching material of the singular video clips. That means, there are two approaches for teachers or "mediators" and also for users to extract the most important contents from each video, and these approaches are reproducible for preparing didactic material in any of the ConClips.

Workflow Steps

In one hand, the steps of the workflow makes the working procedure understandable: The sequence of work steps can be memorized better, the viewer can develop and internalise his/her own logic of the working process.

To achieve results quickly, the best is to take the text of the voice-over and extract from there the relevant single steps within the workflow. In case of *ConClip1 – Avoiding Thermal Bridges when Mounting Insulation Boards* – those steps could be defined as following:

1. Cover the insulation board surface with adhesive mortar
2. Place the insulation boards.
3. Drill holes for fixing the boards in shape of a **W**.
4. Insert the dowels.
5. Close the dowels' holes with plugs of insulating material.

This first stage of defining the working procedure should be kept very simple and comprehensible. The question about these steps would be **What?** – What do I have to do as a next step? This first stage should even not bear descriptive details about the correct procedure when performing the task, it is more like a headline describing the single step in working.

We can than add a second stage of describing the workflow, which would correspond with the question **How?** – That refers to the way to do the work step properly. Here, details how to perform the task are described. For extracting these questions from the ConClip, the voice-over is useful, but one should also consider the inserts as well as close-up views.

A third stage can be subsumed by the Question **Why?** – Here, logic procedure of the workflow can be deepened by explaining the reason why some work step has to be performed the way as it is described in the video; here, the teaching person can also show up the consequences of failure.

Subsequently, there is the sketch of one work step described via three stages:

What? Place the insulation boards.

How? Clean and closed joints must be ensured when installing the insulation board. Because of that, excess mortar must be removed immediately after putting the insulation board on the wall.
The insulation boards are placed shifted in each row.

Why? The main task here is to avoid thermal bridges. Out of that reason, there must not be any gap between the insulation boards. Dry excess mortar would avoid putting the boards together without a gap.

Placing the insulation boards shifted makes the construction more stable – like in case of a brick wall; it lessens the possibility that a gap occurs between the façade and a straight row of boards; in worst case, parts of the insulation can fall away completely.

The consequence of thermal bridges is not only loss of room temperature during the heating period, but also damages like moisture and mould at the very place of the thermal bridge.

Workflow step: Placing the insulation board

Detailed view on how to place an insulation board properly

Keywords

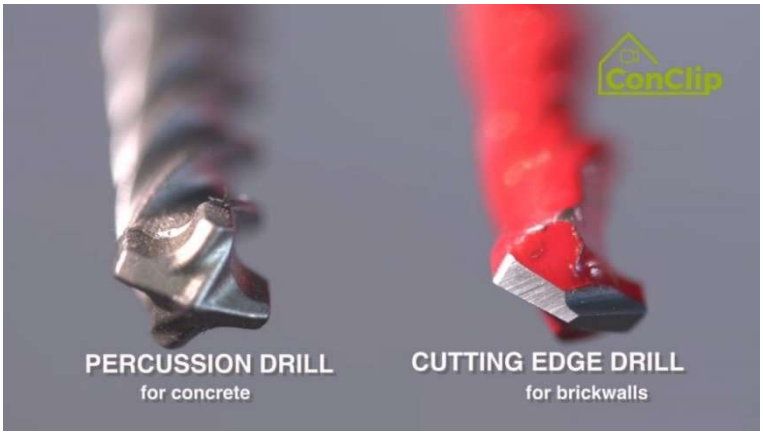
A second cornerstone for didactical approach is by defining keywords occurring in the ConClip. The concept is lent from Raymond Williams' cultural studies, who described *keywords* as terms generating a society's common sense.

When defining the necessities of successful passive house building, it is necessary to have a pool of such keywords which are necessary to overcome a gap of understanding between high-flying construction plans and the situation at the site with possibly unskilled workers. In practice, there is even a more significant language barrier, as immigrant workers do not speak the site's official language well.

In case of the immigrants' languages in which ConClips are also produced (Croatian, Polish, Serbian and Turkish), those keywords, which often also occur as inserts in the video, can be realised bilingual. But also for domestic workers, for the unskilled and skilled, these keywords function as a concise vocabulary of words which are relevant for a certain work step.

Keywords are an extract of the most important technical terms occurring in a ConClip, and they can be divided into two categories:

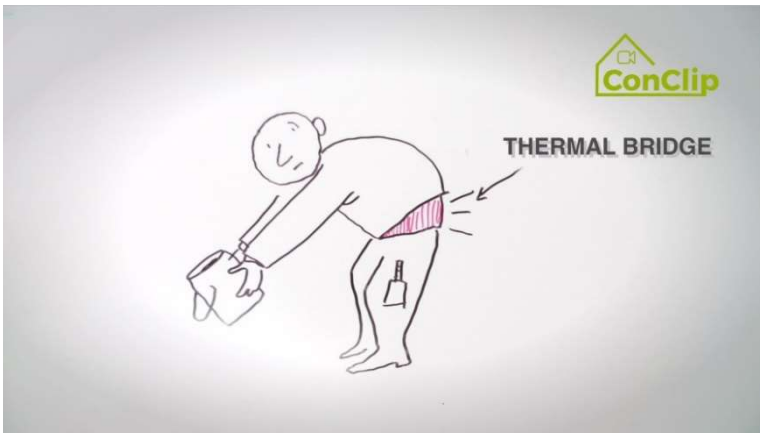
Materials, tools & operations: Aside from special verbs describing either working operations or relevant materials and tools. One example for a keyword referring to the correct tool to use would in case of ConClip1 for instance be the drills: The **percussion drill** is used for concrete, the **cutting edge drill** for brick walls. When applying these keywords in teaching material, a description of consequences of using the wrong drill can be helpful: A percussion drill bit would tear too big holes into a brick wall, that's why a twist drill bit has to be used.



Keyword #1: Drills as examples for keywords referring to the correct tool to use

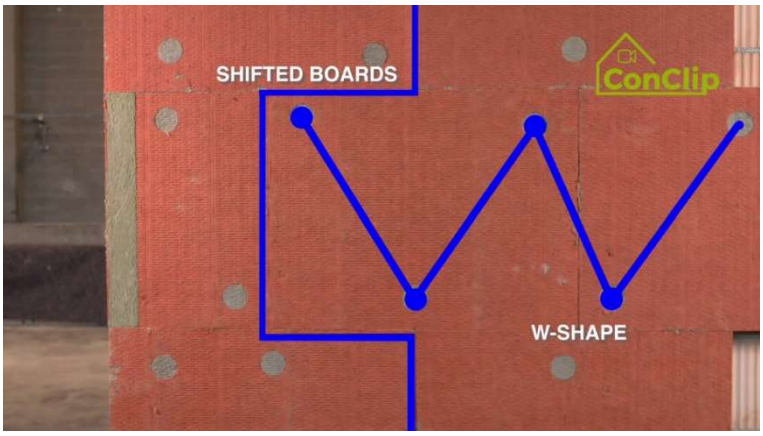
Central abstract terms: Aside from tools, there is another group of keywords, connected to more abstract background knowledge, for instance a term like **thermal bridge**. Finding understandable definitions for those central terms in passive house building is one important didactic task in conjunction with the ConClips.

Another objective is to keep central keywords such as *thermal bridge* or *air tightness* continuously present within the ConClip teaching material, because new information has to be repeated at least five times to be remembered well.



Keyword #2: How to make an abstract term concrete?

It is relevant that the target group is repeatedly being confronted with the core information of the singular clips – the two or three important messages which are also repeated at the end of the clips. Through repetition, the target group will easier get familiar with the terms.



Relevant workflow steps or keywords are repeated at the end of the clips

To illustrate the cornerstones of didactical approach by means of practical examples, the voice-over text and the inserts of *ConClip1*, which you will find on the following page, were used as main source. All the images are stills from *ConClip1 – Avoiding Thermal Bridges when Mounting Insulation Boards.*

ConClip1 – Voice-over text & inserts

Where heat escapes, there are thermal bridges.

Even buildings lose temperature through thermal bridges. Structural damages such as mould can be the result.

Insert: *Thermal Bridge*

How do you install thermal insulation properly so that there are no thermal bridges generated?

At least 40 percent of the insulation board surface must be covered with adhesive mortar when attaching insulation panels on the facade.

Insert: ratio of surface covered with plaster has to be at least 40%

The mortar must form a continuous coil at the edges. This should be approximately 3 centimeters high.

Insert: *coil height approx. 3 centimeter*

Three bearing spots are necessary in the middle.

Insert: *3 bearing spots*

Clean and closed joints must be ensured when installing the insulation board, otherwise a thermal bridge is generated.

Insert: *clean and closed joints*

Excess mortar must be removed immediately.

The insulation boards are placed shifted in each row.

Insert / drawing: *boards are placed shifted*

The correct drill must be used for drilling the holes.

Insert: *percussion drill for concrete*
cutting edge drill for brickwalls

In order to have the proper depth of the holes, an adhesive tape is placed on the drill.

In order to give the insulation boards good footing, the holes are arranged in W-shape.

Insert / drawing: *arrange drill holes in W-shape*

Then the dowels are inserted.

These are sunk with the appropriate drill bit in the proper depth.

Plugs of insulating material in the correct size are placed in the holes to ensure that no thermal bridge is generated. The plugs are placed evenly with the insulation board surface.

The insulation boards are placed correctly and additionally fixed with dowels. There are no thermal bridges. Thus, no structural damage can occur.

Insert / drawing: *shifted boards and W-shape*