



**Recom-
mendations
for political
actors**



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Project Coordination



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Project Partners:



Vocational Training Institution of the
Construction Industry Berlin-
Brandenburg e.V. (BFW-BB)



Vocational Training Centre JEDU
Nivala



Construction School Andrea Palladio
(SCVAP) Vicenza



Stichting CHAIN5



Construction School Complex No.1
(ZSB1) Poznań



University of Technology (PUT)
Poznań

<https://co4health.eu/en/partnerschaft>



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Introduction

The New European Bauhaus

With the New European Bauhaus, the European Commission defines the implementation of the "European Green Deal" as a shared responsibility at the highest political level in Europe and places it within the context of the EU's growth strategy.

The German Federal Government also concretizes the European Green Deal with the core concepts of climate protection, energy conservation, and environmental protection, especially since, for example, around 40 percent of greenhouse gas emissions in Germany are attributable to buildings. Concrete actions are a way to express responsibility for the one world in which we live.

With increasing digitalization in construction planning and execution, the use of new technologies, and further internationalization and EU-wide labor mobility, the European construction industry faces new challenges.

The coordination of construction processes is becoming increasingly complex, requiring the use of new technologies, methods, and research findings.

The holistic approach to a building makes the coordination of different trades and their respective expertise particularly evident. Due to these increased demands, construction professionals face new responsibilities.

It is becoming increasingly clear that healthy building practices must be included.

Consequently, new skills are needed to secure skilled workers for construction companies—but also for vocational schools. Vocational training must rise to the challenge of imparting skills related to healthy building practices.

The teaching of traditional construction skills in conjunction with these new competencies is gaining significant importance.

Past projects

We laid the first steps in the spirit of the European Bauhaus as early as 2001 with the

- **Transbild project – a German-Polish mobility project** in the construction industry – and the BMBF-funded exchange programs with Poland (**2001–2007**).

Together with partners from other EU countries, the following followed:

- **UMBAU & KO – Environmentally Sound Construction with Expertise (2004–2007)**

Focus: Development of a European qualification and certification strategy for needs-based vocational training and continuing education in construction trades, taking into account new EU directives.

Award: *Leonardo da Vinci Prize 2009 “Innovation in Practice”, Innovation Prize of the National Agency for Education in Europe at the BIBB.*

- **Ko-Transfer – Kompetenz spart Energie (2008–2010)**
Co-Transfer – Competence Saves Energy

Key result: EU-wide transferable innovative training modules and competence standards for professions in the construction industry and energy consulting.

- **Fit 4 BIM – Competencies for Digital Construction in Vocational and Higher Education (2017–2020)**

Focus: Building Information Modeling (BIM) as a method for the digital planning, execution, and management of buildings. Development of learning units and materials, as well as a professional development course for teachers in vocational education.

- **DigiCon – Digital Construction for Europe (2020–2022)**

Key outcome: Development of a model for teaching digital skills aligned with real-world work processes in the context of complex workflows. Results included action scenarios, learning scenarios with digital applications and tools (e.g., augmented reality, digital construction files), a digitalization strategy, and a capacity-building guideline.

- **CoConstruct – Digital learning meets sustainability (2022–2023)**

Focus: Pooling of good practices to promote digital job-related skills and examining EU-wide usability and possibilities for institutional anchoring.

Following this logic, we also implemented the project “Co4Health - Competences for Healthy Building in Construction Professions.”

Our Project

The project brought together partners from Germany, Finland, Italy, Netherlands and Poland. In addition to their proven expertise, they share aspects of differing climatic conditions and challenges in implementing healthy building practices.

Through concrete examples, they demonstrated the demands that digitalization places on skilled workers and how the construction professions of tomorrow should be shaped.

With Co4Health, we are systematically introducing the topic of healthy construction as a subject in training and continuing education for construction professions.

We show how the results work under different conditions - a significant added value of international cooperation.

Our “Healthy Construction Model” is a joint product that brings together expertise from five EU countries and makes it available throughout the EU.

Key questions of the project were:

1. *How can the topic of healthy construction be strengthened and represented in vocational training in order to integrate sustainability aspects into the construction sector?*
2. *How can innovative forms of education be developed based on a human-centered design of healthy working and living spaces?*

3. *What strategies lead to long-term, successful cooperation between vocational education and training, business, science, and education policy decision makers?*

This project built upon the results of previous projects on ecological sustainability, energy efficiency, and digitalization.

These topics already play an important role in the construction industry; this time, we strategically focused on the topic of healthy building, which has received too little attention to date.

In Germany, for example, the ifo Employment Barometer (2024) points to one of the largest skills gaps, particularly in preparatory construction site work, building installation, and the finishing trades. This makes vocational training programs more attractive and means that facilitating targeted knowledge transfer on innovative, ecologically relevant topics can attract more young people to careers in the construction industry.

Against this backdrop, the project developed, among other things, learning scenarios and learning modules on healthy building practices, as well as approaches to integrating new content into training programs.

Topics in the these include:

- low-emission building products,
- pollutants and allergens,
- life cycles (recycling/disposal),
- indoor climate,
- radiant heat,
- electrosmog, and
- consideration of user behavior.

Situation in the EU-Countries

A review of the applicable requirements in the project partner countries at the start of the project revealed that all partner countries have legal regulations and standards regarding the required indoor air temperature, indoor humidity, and interior orientation.

To minimize the impact on health, these regulations include recommendations on natural lighting and views to the outside, air pollution, noise reduction, exposure to high- and low-frequency electromagnetic fields, indoor pollution, and the use of materials with reduced emissions.

All partner countries are striving to harmonize their regulations, but due to the specific characteristics of each country, certain discrepancies or shortcomings remain.

In addition to insufficient regulations in the area of healthy building practices, a lack of public awareness in this area is also noted.

Belgium

Belgium has enacted regulations on the impact of buildings on human health, including indoor air quality, ventilation and building materials. The indoor air quality framework applies to all enclosed spaces accessible to the public.

The law defines reference values for CO₂, requires a risk analysis and action plan, and introduces a certification and labelling system for air quality.

The above regulations focus primarily on air purity. There is a lack of uniform policy frameworks in individual countries and a lack of capacity building for professionals and decision-makers with regard to the needs and requirements of healthy buildings.

Finland

Finland has regulations on indoor air quality, building materials and sustainable design. The Finnish Building Code stipulates that a building must not pose any health risks due to air pollution, radiation, moisture, smoke, sewage or improper waste treatment.

The Finnish Institute for Health and Welfare's Finnish Indoor Air and Health Programme 2018–2028 aims to reduce the health risks associated with indoor air quality. It addresses factors such as mold, moisture, radon and other influences that affect the health of occupants.

The New Building Act of 2025 focuses on sustainable construction and indoor climate quality. It mandates the use of low-emission materials and technologies that improve air quality.

Italy

In Italy is the adoption of standard building regulations part of the government's efforts to simplify and standardise the construction industry. These are set out in the agreement of 20 October 2016 between the state, the regions and the ANCI (Official Gazette No. 268 of 16 November 2016, ANCI – Associazione Italiana Comuni, Italian Association of Municipalities).

Among other things, this regulation governs the orientation of buildings and interiors, natural lighting and the external appearance. It also aims to reduce air pollution and noise pollution. Measures are also planned to reduce exposure to high- and low-frequency electromagnetic fields and to reduce indoor pollution.

In addition, the use of materials with reduced pollutant emissions is regulated in order to minimise the impact on human health.

Netherlands

In the Netherlands, regulations on the impact of buildings on human health are mainly contained in the Decision on the Living Environment of Buildings and relate to the health of building users (humidity, ventilation and air quality), building safety, protection against noise and radiation, and building materials and their impact on the health of users.

Poland

In Poland, health-related aspects are regulated in the Regulation on Technical Requirements for Buildings and Their Location of 15 April 2022. Section VIII, “Hygiene and Health,” § 309, stipulates that a building should be designed and constructed from such materials and products that it poses no risk to the hygiene and health of its occupants or neighbors. This applies in particular to the release of toxic gases and the presence of harmful dust or gas particles in the air.

Likewise, hazardous radiation, the pollution or poisoning of water or soil, and the improper disposal of smoke, exhaust gases, contaminants, and waste in solid or liquid form must be avoided. Furthermore, neither moisture in building components or on their surfaces nor uncontrolled ingress of outside air is permitted. The entry of rodents into the interior and any restriction of sunlight and natural lighting are also to be prevented. Meanwhile, issues relating to ensuring accessibility for people with special needs are addressed in Article 7, as amended by Article 44, point 1, of the Law of 19 July 2019 (Journal of Laws, item 1696), which entered into force on 20 September 2019, pursuant to Article 66 of the Law of 19 July 2019 – Building Code, as amended by the Law of 19 July 2019 on ensuring accessibility, in particular taking into account the needs of people with special needs. In close connection with the above-mentioned regulations, the legal structure should take into account the provisions of the following standards: PN-EN 15643 Sustainability of buildings, PN-EN 15804 Environmental product declarations, PN-EN 16309 Assessment of the social performance of buildings and PN-EN 16627 Assessment of the economic performance of buildings. There are several laws and regulations concerning the impact of buildings on human health, both in terms of indoor air quality and building materials. The Law on the Promotion of Safety and Health at Work sets limit values for indoor air quality parameters, which are used to assess the health risks posed by pollutants in residential buildings, offices, and schools. According to these regulations, building products—especially those emitting volatile organic compounds (VOCs)—must meet certain health criteria. The Law on Health and Safety at Work also regulates the impact of building materials on health and the environment. The law on working conditions is supplemented by a number of health and safety regulations concerning specific workplace risks, such as the Ordinance on Hazardous Substances and Biological Agents. Furthermore, there are regulations on preventive occupational medicine and on health and safety when using personal protective equipment in the workplace. Further regulations serve to protect employees from risks caused by noise and vibration. These oblige employers to take appropriate measures to prevent health damage in employees exposed to these substances. In addition, there are regulations to protect employees from risks associated with artificial optical radiation, electromagnetic fields and their effects.*

*Our Polish partner, PUT, also conducted a detailed study, which is being disseminated in other countries and enriched our project work. The study provides a very accurate picture of the state of healthy building practices in EU countries and includes recommendations for action: *Siewczyńska, Monika & Rzeszut, Katarzyna & Kucz, Marlena. (2025). Factors Influencing the Health-Promoting Impact of Buildings. Sustainability. 17. 10304. 10.3390/su172210304. [Factors Influencing the Health-Promoting Impact of Buildings](#)*

Strategic approach

With this project, we are continuing the close cooperation between vocational training, higher education and business stakeholders in order to equip the skilled workers of tomorrow and today with up-to-date skills.

Together with project experts - supported by partners from previous projects (e.g. Belgium) – we developed a transferable model for teaching practical skills and health-related knowledge.

When defining our steps, we were aware that, although there are no fundamental reservations about adapting the topic in corporate and training practice, arguments such as overloaded learning programmes, lack of capacity and lack of financial resources are often raised.

Therefore, in our strategy for implementing the project, we addressed the question:

**Healthy construction in harmony with energy and cost efficiency –
how can this be achieved?**

The aim was to exchange experiences and best practices and to achieve innovative educational results that can be widely applied in the selected field of vocational education and training and at the same time be recognised by construction companies.

Our recommendations for VET- Institutions & Companies on a local level

The necessary steps (our lessons learned):

1. Formation of working groups (to improve the quality of the school's capacities as well as its learning offers)
2. Involvement of decision-makers and recruitment of supporters
3. Analyses of current labour market needs
4. Identification of factors that contribute to healthy construction
5. Determination of exemplary professions for the further development of proposed solutions.
6. Formulation of quality criteria
7. Analyses of learning needs among trainees
8. Regular Check/Collection of good practices in the field of healthy building for the adaption of new learning units in classes (eg. ERASMUS+Projects)

(Co4Health topics: low-emission building products, pollutants and allergens, life cycles – recycling/disposal, indoor climate, radiant heat, electrosmog, and consideration of user behaviour patterns).
9. Actively involving learners in the content of lessons improves learning motivation. This requires a learning environment that enables new methods of skills development.
10. Consultation of the training needs of specialist teachers and trainers
11. Inclusion as a method for reaching more potential students – especially women in the construction sector
11. Use of capacity building concepts as well as training concepts (for students & staff)
12. Formulation of recommendations for the regulatory national level authorities for support of VET Institutions (capacities, curricula etc.)

Our recommendations for Stakeholders on a national level

1. The effort invested in conducting thorough analyses involving diverse stakeholders (businesses, universities, vocational education and training institutions, and education authorities) pays off.
This makes it possible to identify existing gaps in training programs.
2. Systematic research and updates increase the attractiveness and relevance of learning opportunities.
3. Expert brainstorming, analysis of legal regulations in the EU-countries, review of educational programmes and systematic evaluation of scientific literature.
4. The same applies to utilizing best practices from other countries, which can be found, for example, in the databases and on the Erasmus+ program platforms. It is recommended to promote this option more widely, especially to small companies that are unfamiliar with EU projects.
5. Focusing on practical teaching while adapting modern technologies and health-promoting design solutions significantly increases the chances of integration into training practice and leads to greater motivation among training staff to try out new materials and methods.
6. Evaluation of tested materials and methods for examination relevance or adaptation in curricula (Tests should take place in joint educational activities involving VET Institutions and external stakeholders).
7. It is particularly important to consider both practical skills and fundamental construction engineering knowledge, as well as the findings from research.
8. The use of digitalization tools is also essential. This implicitly includes ensuring technical support for vocational schools by the relevant authorities.
9. Collaboration between VET-centres and universities from different countries improves transparency and communication between vocational and higher education.
10. Accompanying dissemination measures at local, national and EU level

Our recommendations for the European Level

The following should be noted:

1. Promoting strategic partnerships enables direct contacts and the acquisition of new partners that would not have been possible without this support.
2. Short-term cooperation supports the development of long-term cooperation strategies between vocational training, industry, and academia. This can be realized through further funding of strategic partnerships such as those from ERASMUS+.
3. The exchange between the responsible stakeholders must be improved (e.g., in the case of the construction sector, between educational authorities, building authorities, construction planners, and training staff – VET-HE).
4. The digitalization of public administration also plays an important role (e.g. information exchange, training courses at the building authority on digital building files to accelerate approval processes, etc.).
5. Promoting interdisciplinary collaboration increases the efficiency of transferring innovative learning opportunities and facilitates the joint development of new solutions (e.g., in the case of Co4Health, between the healthcare and construction sectors).

The project's outcome is a model for integrating the topic of "Healthy Building" into vocational education and training – including a matrix of current competency requirements for healthy building, learning units for use in training, professional development for teachers, and action plans for capacity building in vocational training institutions.

The materials can be easily transferred into the educational offerings of the VET-Institutions & Curricula and can/should therefore be adapted by other countries.

Issues / Obstacles

Even though there are many campaigns, platforms for disseminating results, etc., we find that smaller companies and VET institutions in particular, which suffer from underfunding and have no experience in international cooperation, are taking advantage of the opportunity to modernise their educational offerings. The way in which the target audience is addressed (often too bureaucratic or too abstract) also makes it difficult to access the sources. This has a negative impact on the necessary cooperation between different education stakeholders and on improving the quality of vocational education and training.

As a result, it reduces the availability of up-to-date skilled workers for the rapidly changing labour market.

“Currently, a supporting programme in Europe is the [Healthy Buildings Barometer](#), a guide for policymakers and stakeholders towards achieving healthier, more sustainable buildings. It offers a comprehensive framework based on 12 case studies from the EU to help policymakers and stakeholders move towards healthier, more sustainable buildings. The case studies were conducted in Denmark, France, Germany, the Netherlands, Slovakia, Spain, and Sweden.

The barometer, now known as the Healthy Buildings Barometer (HBB), extends its scope to all major building types, providing information on the health of buildings in Europe. It describes the current state of buildings in terms of indoor health and well-being. The HBB highlights the need for a more integrated approach to healthy buildings, so that all five dimensions of healthy buildings are considered simultaneously, as follows:

- Improvement in mental and physical health;
- Designing with human needs in mind;
- Sustainable construction and management;
- Resilience and adaptation;
- Supporting people

[Healthy Buildings Barometer 2024 | BUILD UP](#)

The available results clearly indicate that healthy buildings can have a positive impact on the health of their occupants.

The goal of openness, which is prescribed at national level, sometimes meets with resistance at the local level.

Being open to new ideas is, however, not something that can be imposed as a guideline from above.

Reforming existing structures within companies and educational institutions requires greater flexibility and openness. This is precisely what seems to be lacking at all levels.

There are still plenty of tasks to be done to continue building a healthy European house (in both senses of the word).

The European cooperation between different actors is essential for this.

The consistent active involvement of political decision-makers and attempts to influence them in line with the project are indispensable.

Conclusion for Transfer

The implementation of rapidly developing new technologies in training and the resulting challenges for the vocational training systems of EU countries requires the involvement of all stakeholders.

The need for action in vocational education and training relates primarily to:

1. Adaptation of the new content to the examinations/frameworks in the field of dual and higher education: The content must be aligned with the market/companies/workshops.
2. Further training courses for teachers and in-company trainers. Educators cannot teach new skills if they themselves cannot confidently manage and use the new technologies. Educators must be given a considerable framework for efficient further training ($\geq 20\text{-}30\%$ of working time!!!). Integration of new content into master classes and master preparation courses.

3. Trainees and students must be made aware from the outset of what apprenticeship specific and professional perspectives they can expect.
4. Changes to the existing structures in the vocational schools/companies (equipment of the rooms, access to data, location-independent learning).
5. The rethinking at the workplace - This also implies a reorganisation of responsibilities for the handling of new technology & methods.
6. Further education offers for decision makers - *It should be noted here that the administrative support that needs to be provided is not always available.* In many cases, this fails because of a mixture of competitive thinking and the responsibility of individual actors. This concerns both the financing and the regulatory provisions (acquisition of modern technology, cooperation between VET-school and academic – Higher Education or other sectors, free server access, learning platforms, data protection provisions in relation to the use of data for control systems).
7. New cooperation and permeability concepts
8. Regular evaluation of new technologies and pedagogical concepts

The *Co4Health* partnership has proven that the implementation of even complicated initiatives can succeed and that close cooperation between vocational training, universities and companies is a very important instrument that leads to success.

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