Session 2B on the role and function of Digital ecosystem(s) in BUILD UP Skills projects

14th BUILD UP Skills EU-Exchange
November 2022, Jan Cromwijk
What is a digital Learning Ecosystem?

E-learning
- Training catalogue BUS
- Advisor app

Materials catalogue

Gamification elements

Micro-learnings

Self-inspection

E-RPL tool

Professional register

Digital badge

Find your craftsman

POE tool

BIM tools for gap reduction

SEE the Skills
Sustainable Energy Skills in construction: Visible, Validated, Valuable

VISIBILITY
- E-learning
- Training catalogue BUS
- Advisor app

VALUE
- Professional register
- Digital badge
- Find your craftsman

VALIDATION
- Self-inspection
- E-RPL tool

NEW
- Mobile app for self evaluation

SEE the Skills
Sustainable Energy Skills in construction: Visible, Validated, Valuable
Digital means for upskilling

https://www.menti.com/  5855 1754
Learning Management Systems

Many projects… Many Systems
Objetivos:

- Soluciones constructivas de la parte inferior de la fachada.
- Soluciones constructivas para cubiertas.
- Soluciones constructivas de techos.
- Soluciones constructivas de ventanas.
- Soluciones constructivas de elementos de contacto con el terreno.
- Soluciones de aislamiento de redes de distribución para equipos en la edificación (tuberías y conductos).

En casa

En clase

SECCIÓN ANTERIOR
Unidad 4 - Notas básicas sobre la instalación de los materiales de aislamiento

UNIDAD 5 - EJECUCIÓN DE DIFERENTES SOLUCIONES CONSTRUCTIVAS

CREA
Figura 3.5. Utilización de medios mecánicos para el transporte de materiales

Consecuencias relacionadas con los defectos del material aislante que se recepciona en la obra son:

- Los que presenten daños en su embalaje pueden causar una mermara en sus propiedades aislantes cuando son colocados.

- Si no se cumplen con las especificaciones del CTE y la certificación energética prevista.

Re comprobación que el producto llega a la obra con el embalaje original y en perfectas condiciones. Asimismo, hay que verificar que las características del producto enviado cumplan con las especificaciones del proyecto.

¿Ya lo has aprendido?
Kvíz - Vzduchotěsnost 2

Vážení studenti, věřte, že všechny tato otázky mají správné odpovědi! Zajistěte se, že je každý obraz správně zobrazen.

1. [Obrázek s textem: Návod pro vzdychotěsný příběh konstrukce]
   - Obrázek na obrazovce je vždy správný

2. [Obrázek s textem: Vzduchotěsnění upevnění společně s mozaikou konstrukce i stropu a obvodového průduší]
   - Obrázek na obrazovce je vždy správný

3. [Obrázek s textem: Nově vzniklá stěnová detaile]
   - Obrázek na obrazovce je vždy správný
Is dit de eerste keer dat je hier bent?
Om volledige toegang tot deze site te krijgen, moet je een account maken.
Nieuw account maken
Hello Paulo

Rank: **Serious Learner**
XP Level: 4
Modules: 4
Training plans: 2

**MY MODULE LIST**

- **BIM ready**
  - 72% complete

**MY TRAINING PLANS**
Learning Management Systems

https://www.menti.com/

5855 1754
Unit of Learning Outcome databases

1. Train4Sustain
2. BUILD UP Skills
3. ...

BUS LEAGUE
# BIM MANAGER (SP)

<table>
<thead>
<tr>
<th>Economy</th>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Economical quality</strong></td>
<td></td>
</tr>
<tr>
<td>Cost planning and management</td>
<td></td>
</tr>
<tr>
<td>Construction cost planning</td>
<td></td>
</tr>
<tr>
<td>Understanding the procedures to produce a construction cost planning</td>
<td></td>
</tr>
<tr>
<td>Green value</td>
<td></td>
</tr>
<tr>
<td>Value creation and risk exposure</td>
<td></td>
</tr>
<tr>
<td>Understanding the values of sustainable design</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Materials</strong></td>
<td></td>
</tr>
<tr>
<td>Sustainable materials</td>
<td></td>
</tr>
<tr>
<td>Life Cycle Assessment (building scale)</td>
<td></td>
</tr>
<tr>
<td>Understanding minimal environmental principles needed to do the job successfully.</td>
<td></td>
</tr>
</tbody>
</table>

What does the level of competence mean?
Select the tasks, subtasks and ULOs to be included in this publication:

- Advise about heat pump installation
  - Advise on the technical aspects of climate control systems
  - Checks whether the hydraulic circuit of the installation concept is satisfactory
  - Identify the main components of the heat pump in order of operation and briefly explain their operation
  - Identify points for attention and risks surrounding the heat pump system
  - Identify the points for attention and risks, advise solutions and how bottlenecks can be solved
  - Advise solutions around the heat pump system
  - Identify the points for attention and risks, advise solutions and how bottlenecks can be solved
  - Advise on the heat pump installation (work manager)
    - Advise on the operation and interaction of different types of heat pumps and their areas of application
    - Determine which heat pump system is suitable for which architectural and technical preconditions
    - Investigates in the event of complaints (not hot, high energy consumption) whether a heat pump system is suitable
Tasks and subtasks addressing all phases in construction covering the whole value chain.
**BUILD UP Skills advisor ULO-database**

**New subtask**

<table>
<thead>
<tr>
<th>en</th>
<th>nl</th>
<th>es</th>
<th>de</th>
<th>sk</th>
<th>hu</th>
<th>fr</th>
<th>lt</th>
</tr>
</thead>
</table>

**Title**

Advise on the technical aspects of climate control systems

**ULO**

- Checks whether the hydraulic circuit of the installation is correct
- Identify the main components of the heat pump in order to carry out their maintenance

**Professions**

Type here to search for an ULO or create a new one.

**Specialisms and technologies**
What competence is expected for performing the subtask?

What skills does one need to be competent in the subtask?

What Knowledge does one need to apply skills for showing competence with regards to the subtask?
Unit of Learning Outcome Database

https://www.menti.com/  5855 1754
Inventories of Courses and Learning Materials

In many projects…
In custom made databases
Difúzně otevřené skladby

- Sádrokartonová nebo sádrovláknitá deska: 12,5 mm
- Instalační dutina: 30 mm
- Parobrzdá INTELLO PLUS: 0,2 mm
- Přeplameněné spoje páska TECON VANA
- Foukaná celulózová izolace CLIMATIZER PLUS: 260 mm
- Expandér UE105
- KVH hranol: 140/80 mm
- Dřevovláknitá izolační deska UdisPEED: 40 mm
- Střída UdirUNDSPACHTEL s armací tkaninou 5 mm
- Vnitřní omlaz UdirPERL: 1,5 mm

POZN. Dimenze nosné konstrukce objektu nutno posoudit staticky výpočtem.
E-INVENTORY

Find and read details about courses that are most relevant for you.

FIND COURSES

SEARCH

BIM

THEMATIC FIELDS

EXPERTISE

Load more

Technician for programming and management of the building process, BIM and green oriented

800

Italy

The construction site management technician coordinates the construction process and/or restructuring process; oversees the planning, management and control aspects of the execution of the works, with a view to optimizing the resources used. He recognizes and faces unforeseen events and variations relat...
Inventories of Courses and Learning Materials

https://www.menti.com/  5855 1754
Personal Recognition

In many projects… in multiple ways
Green skills accreditation system

Pathways for a worker to get the Green Tag

Path 1

Construye 2020+ courses
(online, blended, face to face)

Path 2

Experience accreditation
(practical exam based on Construye 2020+ courses’ learning outcomes)

Green Tag A
Green Tag B
Green Tag C
Green skills accreditation system

Green Tag integration within Construction Professional Card (TPC)

A green skilled worker...

... goes to a TPC office with a Construye 2020+ diploma, where it is verified and included within TPC’s worker data...

... and new data is totally available and downloadable for the worker!!
Please note this public list contains only the CEN EPB Standards Certified Experts that have given consent to be displayed.

## EXPERTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Country</th>
<th>City</th>
<th>EQF level *</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 15316-4-4</td>
<td>Generation - Solar, PV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-4-3</td>
<td>Generation - Integrated cogeneration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-4-2</td>
<td>Generation - Heat pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-4-1</td>
<td>Generation - Boilers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-4-10</td>
<td>Generation - Wind turbines (not in mandate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-4</td>
<td>Emission &amp; controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-3</td>
<td>Distribution systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-2</td>
<td>General part</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EN 15316-1</td>
<td>General needs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* EQF level descriptions

Alberto Fabrici  
View details

Alen Ćurin  
View details

Ana Matković  
View details

Andelko Medvidović  
View details

Angela Simone  
View details

Anka Ferić Marković  
View details
Personal recognition & LifeLong Development
Diego De Nardi

D-STUDIO - DIEGO DE NARDI ARCHITECT is an architectural firm based in Treviso. The design activity of Diego De Nardi (graduated in Venice - IUAV - in 1996, enrolled in the Order of Architects of Treviso in 1998), spills over into academic activity at the IUAV-Venice (from 1996 to 2016 he held lectures, seminars, and workshops in the courses of Prof. Angelo Villa, co-supervisor of over 30 degree theses) and is intertwined with cultural activity (publications of volumes, essays in international architectural journals, conventions and conferences). A way of 'being an architect', between architecture as a discipline and architecture as a profession. The design activity is mainly focused on themes related to architecture and the city. Restoration of Cultural Heritage, buildings and urban equipment, urban development and recovery projects and plans, declined in public and private works projects also carried out in collaboration with different design groups, sometimes reported in competitions and published in sector newspapers.

Language skills

English - Language level

October 20, 2022
<table>
<thead>
<tr>
<th>SKILLS PASSPORT</th>
<th>Accessibility</th>
<th>Comfort and well being</th>
<th>Services</th>
<th>Built Environment Certification systems</th>
<th>Interdisciplinary Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barrier free accessibility</td>
<td>Thermal comfort</td>
<td>Services for inhabitants</td>
<td>Building sustainability certification</td>
<td>Collaboration and Communication</td>
</tr>
<tr>
<td></td>
<td>AC1.1 Accessibility of public spaces</td>
<td>CO2.1 Indoor Thermal Comfort</td>
<td>SE2.1 Functional mix</td>
<td>BE1.2 Building sustainability certification systems</td>
<td>IS3.1 Motivation and communication - Design Team</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Analysing and addressing SkillGaps

What does the level of competence mean?

1. Has little knowledge and skills with respect to the thematic area. Understands basic principles and is able to take part in project team discussions.

2. Understands basic knowledge and has practical skills within the thematic area, is able to solve simple problems by selecting and applying basic methods, tools, materials and information.

3. Has comprehensive, factual and theoretical knowledge and skills within the thematic area, is capable of solving standard problems within the field.

4. Has advanced knowledge involving a critical understanding of theories and principles and skills, required to solve complex and unpredictable problems in the field and is aware of the boundaries.

5. Has specialized knowledge and problem-solving skills, partly at the forefront of knowledge in the field, in order to develop new knowledge and procedures and to integrate knowledge from different fields.

<table>
<thead>
<tr>
<th>CODE</th>
<th>TECHNOLOGY, INTERDISCIPLINARY SKILLS AND PROFESSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRR</td>
<td>Prioritise regenerative resources</td>
</tr>
<tr>
<td>PRR1</td>
<td>Bio-Based and regenerative material application</td>
</tr>
<tr>
<td>PRR2</td>
<td>Reusable material application</td>
</tr>
<tr>
<td>PE</td>
<td>Preserve and extend what is already made</td>
</tr>
<tr>
<td>UWR</td>
<td>Use waste as a resource</td>
</tr>
<tr>
<td>UWR1</td>
<td>Deconstruction for reuse</td>
</tr>
<tr>
<td>UWR2</td>
<td>Material Innovation</td>
</tr>
<tr>
<td>UWR3</td>
<td>Reclaiming Energy</td>
</tr>
<tr>
<td>UWR4</td>
<td>Continuous reuse of energy with little or no waste</td>
</tr>
<tr>
<td>DF</td>
<td>Design/Build for the future</td>
</tr>
<tr>
<td>DF1</td>
<td>Design/Build for Reuse</td>
</tr>
<tr>
<td>DF2</td>
<td>Design/Build for repurpose of materials</td>
</tr>
</tbody>
</table>
What’s next: Personal Skills Assessments
What’s next: Personal Skills Assessments

**SKILL GAP ANALYSIS**

Choose a topic to do a self assessment on:

**Circular Skills**

**SELF ASSESSMENT**

Assess your current skill level as Asset manager for Circular Skills.

How would you rate your knowledge and skills regarding Prioritise regenerative resources:

- I have heard of some terms and have a little experience
- I often applied this topic in my work

**SELF ASSESSMENT**

Assess your current skill level as Asset manager for Circular Skills.

How would you rate your knowledge and skills regarding Design for the future:

- I have heard of some terms and have a little experience
- I often applied this topic in my work
What’s next: Personal Skills Assessments

As Asset manager for Circular Skills you currently posses 56 percent of the needed skills.

Below you can see an overview of the topic(s) that are sufficient and topic(s) that could improve.

- Prioritise regenerative resources: 20%
- Design for the future: 133%
- Incorporate digital technology: 50%

Your skill level looks like the following:

1. Learn the basics
2. Build up some experience
3. Be able to do the standard work
4. Be able to solve complex work

Click on the different levels to see courses to upskill yourself to a certain level.

Download results

BUS GoCircular
What’s next: Personalised learning pathways
Set ambition level

What ambition do you have for $(company.name) concerning $(topic.name)?

drag the slider

Level 1: Lonely BIM
I want to be able to perform model-based collaboration
Invite employees

The last step is to invite your employees to do a BIM self-assessment to determine the current BIM level of your company. Below you can send invitations to your employees.

<table>
<thead>
<tr>
<th>E-mail</th>
<th>Name</th>
<th>Profession</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:jane.doe@company.example.com">jane.doe@company.example.com</a></td>
<td>Jane Doe</td>
<td>Architect</td>
</tr>
<tr>
<td><a href="mailto:john.doe@company.example.com">john.doe@company.example.com</a></td>
<td>John Doe</td>
<td>Planner</td>
</tr>
<tr>
<td><a href="mailto:luke.doe@company.example.com">luke.doe@company.example.com</a></td>
<td>Luke Doe</td>
<td>Builder</td>
</tr>
</tbody>
</table>

add employee e-mail

Previous
Send invitations
DASHBOARD COMPANY X

Your achieved your BIM ambition for: 50%

Readiness

Below you can see an overview of readiness of your employees.

<table>
<thead>
<tr>
<th>Name</th>
<th>Current level</th>
<th>Profession</th>
<th>Send reminder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ada Lovelace</td>
<td>no response</td>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Grace Hopper</td>
<td>100%</td>
<td>Builder</td>
<td></td>
</tr>
<tr>
<td>Margaret Hamilton</td>
<td>100%</td>
<td>Bricklayer</td>
<td></td>
</tr>
<tr>
<td>Joan Clarke</td>
<td>92%</td>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Joan Clarke</td>
<td>83%</td>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Joan Clarke</td>
<td>87%</td>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Joan Clarke</td>
<td>0%</td>
<td>Architect</td>
<td></td>
</tr>
<tr>
<td>Joan Clarke</td>
<td>15%</td>
<td>Architect</td>
<td></td>
</tr>
</tbody>
</table>

Send reminders
Personal Recognition and Skillgap analysis

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Interconnectivity

Entry Point for Users: Maturity Scan
- Maturity Scan Links to learning content
- When successfully completed, a learning an Open Badge can be issued (incl. link to learning goals)

ISSO: Build Up Skills
- Course Catalog / Unit of Outcomes
- Database / Maturity Scan
- Issues Open Badge

ARISE LMS: Inherited from BIMCERT and extended in ARISE
- Issues Open Badge
- ARISE LMS uses learning goals from ARISE Qualification and issues open badges on completion of certain learning modules
- Issuing can be done with Moodle and/or with a 3rd party service

KEA: Blockchain Services (to be detailed by KEA)
- Issued Open Badge

Open Badges: 3rd party service

Entry Point for Learners
- LTI (Facilitates Launching and accessing Content between Learning Management Systems)
- Refers to LTI

Optional: Entry Point for Users
- Open Badges Moodle service
Interconnectivity in Digital Learning Ecosystem(s)

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Public Consultation

TRAIN4SUSTAIN CEN Workshop Agreement
Where is harmonization or standardization needed?

https://www.menti.com/  5855 1754
How to consolidate and build upon proven outcomes...?

https://www.menti.com/  5855 1754
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