BUILD UP Skills
9th EU exchange meeting
6 - 7 December 2016 - ATHENS
Crowne Plaza Athens, 50 Mihalakopoulou Avenue, 11528 Greece

QualiBuild
Upskill • Train • Improve
Build UP Skills - Up-Skilling in Quality Low Energy Building

Project Duration
1/11/13 – 30/7/16
(33 Months)

Website: www.QualiBuild.ie

Social Media:
facebook.com/QualiBuild
@QualiBuild
#QualiBuild

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Why it all started

- Up skill construction workers that are still employed
- Up skill trainers who in turn will upskill construction workers
- Update EU policies and national regulations
- Principles of low energy building
- Understand quality
- Improve on-site communication skills
Training Actions

Train the Trainers.

- Review apprentice curricula for construction crafts to incorporate knowledge and new skills related to low energy buildings.
- Develop specialist training for each relevant craft.
- Develop specialist training for arising technician roles.
- Review, update and develop if needed new programmes for construction managers and site supervisors that will equip them with the necessary skills to manage the implementation of low energy buildings.

Introduce short Foundation Energy Training for all Building Construction Workers.
Supporting Actions

**Quality Building Registration System** designed & integrated with other relevant systems

**Quality Building Communications Campaign** implemented on multiple levels engaging with >10,000 people

**National Roll Out Plan** agreed with additional finance secured
Training Programmes:

Train the Trainers

Foundation Energy Skills - FES
Train the Trainers

The Aim - Address the knowledge gap that exists with the current trainers

The Now - Deliver the new programme for 100 trainers

The Future - Develop a proposal for a system of Continuing Professional Development (CPD) for trainers
The Train the Trainer Programme

Module 1 - Building for Energy Performance
The context of demand for low energy buildings

Module 2 - Building Fabric
Reducing energy demand

Module 3 - Building Services
Optimising systems for heating and lighting

Module 4 - Pedagogical Approaches
Training for knowledge and attitudinal change
Programme Structure

- 4 module programme – 20 Credits at NFQ Level 7 (Level 6 EQF)
- Certificate in Training in Low Energy Buildings
- Blended Learning Approach

- Content provided upfront – Learner Manual for each module
- Followed by workshops & site visits
- Continuous Assessment

1/11/13 – 33 Months
Delivery Approach

- 4 - 5 weeks between modules
- Learner manuals circulated 4 weeks beforehand
- Pre-workshop activities to engage learners
- A ‘flipped classroom’ approach
- Site visit following workshop to provide insight to practical applications and reinforce learning
- Written/practical assignments issued at each workshop (to be completed before next module)
Delivery of Train the Trainer Pilot

- **Phase 1** – Oct 2014 – Mar 2015
  3 Groups - 2 Dublin and 1 Sligo

- **Phase 2** – Sept 2015 – Mar 2016
  2 Groups - Dublin and Cork

- **87 Trainers registered. 57 Trainers qualified**

Information on the Train the Trainer is available at: [http://www.qualibuild.ie/train-the-trainer/](http://www.qualibuild.ie/train-the-trainer/)
Train the Trainer pilots

- Delivery modelled on pedagogical approach for FES
- Group activities enabling peer-to-peer learning
- Opportunity to observe practical applications of theory
Results and Evaluation

- Lower than anticipated levels of participation
- Low numbers of trainers in both the IoT and ETB sectors
- Lack of awareness at organisational level for need for training in this area
- Lack of formal CPD structures for vocational trainers

“I really enjoyed the course and would love to get a chance to deliver it in the future!!”

“I did find the volume of work intense on top of an already full work-life”

“More hands on practical demonstrations with learners being allowed to do the task”

“Well done on the course it has helped me update myself on modern building techniques”
Develop a training programme for construction workers on Quality Low Energy Building

Pilot it with 200 workers

Evaluated and accredited by LIT and ITB

Has to be Relevant, Effective, Scalable

Knowledge vs Skills

Should be Engaging, Valued, Accredited

"M'lum, I'm afraid the insulation in the walls of your gingerbread house contains dangerously high levels of cholesterol."
Programme

Accredited as Hetac level 6 (EQF level 5) - 5 Credit Module

Unit 1: Energy and Buildings
- Energy Use in Buildings
- Key Terms
- Overview of Climate Change & EU Policy

Unit 2: How Energy Works
- Heat Transfer
- Simple Explanation of Energy Units
- Energy Principles of Building

Unit 3: Building Fabric 1
- Air Tightness & Wind Tightness

Unit 4: Building Fabric 2
- Insulation, Thermal Bridging & Best Practice

Unit 5: Heating & Ventilation
- Heating Systems
- Ventilation & Condensation

Unit 6: Systems Thinking
- Working Together
- The Importance of Communication

1/11/13 – 33 Months
The content from the course can be downloaded from the website [www.qualibuild.ie/resources](http://www.qualibuild.ie/resources).

Content provided – hardcopy and on-line

Preparation of course materials for independent learning

Demonstrations and workshops:

- Air Leakage
- Principles on Air Tightness
- Continuous Insulation
- Detailing and Thermal Breaks
- Controlled Ventilation
Delivery of FES Pilots

- Range of delivery methods
  - 2 Days plus 1 demo day (over 5 weeks)
  - 4 Evenings plus 1 demo day (over 6 weeks)
- Balanced Classroom and Demonstration Workshop
- Discussions, debates, poster work, interaction, technical and animated videos
- Demonstration models, hands on activities, and review of materials and products
- Group work, Assessment and Accreditation

Who took part?
Location of FES Pilots

**Phase 1** - delivery for 7 groups, 2 in Dublin, 2 in Cork, 1 in Limerick, 1 Galway and 1 Cavan

**Phase 2** - delivery for 5 groups, 2 in Dublin, 1 in Limerick, 1 in Galway and 1 in Waterford

**Additional** deliveries for Better Energy Communities in Belmullet and Irish Prison Services in Portlaoise

14 Pilot courses completed – 232 registered and 196 completed the course.

Read what the construction workers have to say
[https://youtu.be/18SxI7oEf2w](https://youtu.be/18SxI7oEf2w)
What Worked - Evaluation

- **Reaction** – a pre and post training questionnaire
- **Learning** – the course assessment results
- **Behaviour** – a series of phone interviews with participants
- **Results** – series of phone interviews with employers

**Employer**: Do you believe that all workers involved in building construction should complete a FES course or similar?

“All construction workers should [do the training] so we’re all singing off the same hymn page in that we all know what we’re doing. I find that in residential housing one guy comes in and he is doing things to his ideas and somebody else is doing it to other ideas” – employer in Galway

**FES Worker**: What, in your opinion, would encourage more building workers to seek training on low energy building?

“If there was someone calling onsite to check who knew what and to highlight to them if they didn’t know stuff that they need the training” – participant from Offaly
Results Summary

Employers

- **100%** recognised need to invest in staff training
- **Majority (90%)** saw link between FES, CPD and CIRI
- **Majority (75%)** indicated willingness to pay for programme
- **100%** indicated benefits of being able to market services based on quality
- **100%** would recommend to others

FES Participants

- **100%** would recommend to others
- **Majority (90%)** would pay for the programme
- **Majority (75%)** feel it should be mandatory
- **Majority (90%)** had discussed with co-workers and got positive reaction
- **Majority (90%)** felt all building construction workers should complete programme
<table>
<thead>
<tr>
<th><strong>Conclusions</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Training Delivery</strong></td>
<td>3 day FES course accepted by individuals and employers to achieve learning objectives</td>
</tr>
<tr>
<td><strong>Practical Training</strong></td>
<td>Practical demonstrations and/or hands-on training appropriate for cohort</td>
</tr>
<tr>
<td><strong>CPD Training</strong></td>
<td>A majority of FES participants rated their knowledge of low energy buildings as middling and require further follow-on training.</td>
</tr>
<tr>
<td><strong>Training Support</strong></td>
<td>Weekday preferred by large companies and evening/weekend preferred by smaller companies and individuals</td>
</tr>
<tr>
<td><strong>Training Costs</strong></td>
<td>Costs should be minimised or subsidised as the objectives of quality buildings and energy savings should be supported by government.</td>
</tr>
<tr>
<td><strong>Mandatory Training</strong></td>
<td>Many believe that FES should be a mandatory training requirement (similar to Safe Pass).</td>
</tr>
<tr>
<td><strong>CWSR</strong></td>
<td>Many participants want greater recognition of their qualifications and a platform to show them.</td>
</tr>
<tr>
<td><strong>Validation</strong></td>
<td>NFQ - The FES course should be revalidated at a vocational educational level more appropriate to the 3-day training programme and the target cohort for the training.</td>
</tr>
</tbody>
</table>
Supporting Actions:

Register
Communication
National Roll Out
Construction Workers Skills Register

Online register of training for individual construction workers in Ireland

A platform for all construction workers to join the Register and display their training and skills.

Search the Register for construction workers who are trained in quality low energy building
Why Register?

- Registered members can use the annual Construction Worker Skills Register logo in their promotional material
- Inclusion on a register of skilled construction workers is a means of generating new business leads
- Creates a direct link between training and employment opportunities

Requirements for entry: Complete the FES course

To link with other registers
Finalised the design and development of the register.

Piloted CWSR with construction workers – currently only have 36 registered.

Link: https://www.constructionworkerskillsregister.ie/
> Unique website visits target was 10,000 - exceeded with 14,465 visits
> On the website: 4,000 views of the QualiBuild videos; over 500 connections with builders, trainers and construction professionals viewing other training resources. 150 downloads of Quality Building e-book for consumers and professionals.
> Social media channels, resulted in 878 followers on Twitter, 186 likes on Facebook, 3,845 video views on YouTube and 1,569 views on SlideShare.
Presented at fifteen conferences with a combined attendance of over 4,300 people.
Exhibited and supplied information at six main industry events with over 1,400 stakeholders.
Consumer outreach on the topic of Quality Low Energy Building, the project exhibited at three consumer trade shows, with over 30,000 attendees.

Promotional: Publications, training courses, brochures, posters, visual videos.
National Roll Out

- Investigated the key elements:
  - **Sustainable Funding** – Sources of funding, estimated costs and where to train 60,000 plus workers.
  - **Other Training Actions** – Training opportunities and progress in CPD
  - **Other Supporting Measures** – CIRI, upskilling building officers and industry training
  - **Handover and National Roll Out Plan** – Responsibility of a National Body, such as SOLAS.
  - (short term plan and long term plan)
### Sustainable Funding

#### Numbers to train: assuming 20 per course and 20 venues available

<table>
<thead>
<tr>
<th>Category</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers to be trained</td>
<td>60,000</td>
<td>80,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Annual average number of courses over three years</td>
<td>1,000</td>
<td>1,334</td>
<td>1,667</td>
</tr>
<tr>
<td>Annual average number of courses over six years</td>
<td>500</td>
<td>667</td>
<td>834</td>
</tr>
<tr>
<td>Annual average number of courses over ten years</td>
<td>300</td>
<td>400</td>
<td>500</td>
</tr>
<tr>
<td>Annual average number of courses per centre over three years</td>
<td>50</td>
<td>67</td>
<td>83</td>
</tr>
<tr>
<td>Annual average number of courses per centre over six years</td>
<td>25</td>
<td>33</td>
<td>42</td>
</tr>
<tr>
<td>Annual average number of courses per centre over ten years</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Annual average number of courses per trainer over three years</td>
<td>17</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Annual average number of courses per trainer over six years</td>
<td>8</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Annual average number of courses per trainer over ten years</td>
<td>5</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>
Whats Needed

5 key factors are essential for success:

- **Financial** assessment to cover the training programme delivery and the management of the CWSR
- **Availability** of organisations and venues willing and able to deliver the training courses
- **Responsibility** of an organisation willing and able to take on the coordination function of the Training and CWSR
- **Promotion** highlighting the importance of the training programmes and quality low energy building.
- **Mandatory CPD** development providing value to the training and skills of the construction workers through the CWSR.
FES National Roll-Out – Long-term

- **Long-term** roll-out to 60,000+ construction workers requires involvement of a major organisation.
- To be **Co-ordinated** by SOLAS and ETB Network using the ETBs and private trainers.
- The pilot suggests FES is **Sustainable** and could be self-funding.
- **Subsidy** through Sustainability Skillnet for employers
- Upskilling of **unemployed** construction workers will be needed as economy recovers
- **Mandatory CPD** essential in construction industry - CIRI
FES National Roll-Out – Short-term

- **Initiated** a short term Roll-Out of FES
- **Delivery** proposed in 2017 at a number of locations to be accredited by LIT and ITB.
- All QualiBuild partners signed MoU to assist with **promotion** and support.
- **Interested Training Bodies** from ETBs, IoTs and private trainers are in the process of signing MoUs.
- **Fee** agreed at €340 – additional costs for registration and CWSR (range €300-500)
- **Discussions in process** with Government, SOLAS and CIRI
Summary Recommendations

- **Train the Trainers**
  - Registration system and CPD required for trainers of construction skills

- **FES Training**
  - Validate at NFQ level 5 (EQF Level 4) to maximise roll out
  - Create CPD pathways to continue training/education
  - Short Term Roll Out - proposed to be managed by LIT/ITB
  - Long Term Roll Out - negotiations with government and organisations for large scale integration into National systems - mandatory
  - Promote FES within market to stimulate demand

- **CWSR**
  - Incorporate with other construction registers and to be managed by CIRI or SOLAS.
## Performance Indicators

<table>
<thead>
<tr>
<th>Common Performance Indicators</th>
<th>Existing target</th>
<th>Result</th>
<th>Target 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of training courses</strong></td>
<td>10 FES pilot courses</td>
<td>7 in phase 1 M23 to M26 7 in phase 2 M26 to M30 3 in phase 1 M12 to M17 2 in phase 2 M24 to M29</td>
<td>8 in 2017 &amp; 172 by 2020 Trainers: 9 by 2020</td>
</tr>
<tr>
<td><strong>People to be trained</strong></td>
<td>Workers: 800hrs Trainers: 240hrs</td>
<td>Workers: 1008 hrs (72 x course) Trainers: 320 hrs</td>
<td>576 hrs for 2017 12,084 hrs by 2020 Trainers: 576 hrs by 2020</td>
</tr>
<tr>
<td><strong>Number of hours taught</strong></td>
<td>Workers: €600 Trainers: €1,500</td>
<td>Workers: €600 per worker Trainers: €2,300 per worker</td>
<td>€340 in 2017 per worker €1,141,040 by 2020 Trainers: €20,700 by 2020</td>
</tr>
</tbody>
</table>
### Common Performance Indicators

<table>
<thead>
<tr>
<th></th>
<th>Existing target</th>
<th>Result</th>
<th>Target 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renewable Energy production triggered</strong></td>
<td>1,340 toe/year</td>
<td>1,340 toe/year</td>
<td>10,720 toe.</td>
</tr>
<tr>
<td><strong>Primary energy savings</strong></td>
<td>2015: 2,487 toe/year 2016: 14,921 toe/year</td>
<td>2015: 74,603 toe/year 2016: 74,727 toe/year Total: 149,330 toe/year</td>
<td>861,307 toe/year</td>
</tr>
</tbody>
</table>
Final Remarks

- Short term FES training is to be carried out in 2017 – initiating 8 courses by LIT and ITB.
- Other training organisations are invited to train.
- Upskilling of construction workers proved successful through both training programmes.
- Support for Training by major organisations – CIRI, SEAI, SOLAS requires financial assistance from Government.
- Influence the Change of the Construction Industry.
A Vision - Quality Building Skills Pass
Thank you to:

Roinn Cumarsáide, Fuinnimh agus Acmhainní Nádúrtha
Department of Communications, Energy & Natural Resources

SOLAS
An Sréibhse Oideachais Leanúnaigh agus Scileanna
Further Education and Training Authority

Sustainable Energy Authority of Ireland
SEAI

Comhshaoil, Pobal agus Rialsat Áiteanaí
Environment, Community and Local Government

NICER
National Irish Center for Energy Rating

Joseph Little Architects

The Chartered Institute of Building

CIBSE

Environmental & Sustainable Construction Association

Gyproc
SAINST-GOBAIN

KSN Energy

Homeland Technical

Association of Irish Energy Agencies

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- **Partner 1**
  - Institute of Technology Blanchardstown

- **Partner 2**
  - Dublin Institute of Technology

- **Partner 3**
  - Irish Green Building Council

- **Partner 4**
  - Construction Industry Federation
Thank you for listening