Materials and Workmanship

How the ‘QualiBuild’ program can improve construction standards on-site
To Cover

- QualiBuild project
  - Project partners and its development
  - Background
  - Main focus
  - Ambitious targets
  - Objectives to achieve targets
  - Expected impacts
  - Endorsement/Support
- WP’s overview 1-7
  - Targeted upskilling
  - Strategy
  - Training actions
  - Supporting actions
- Challenges and evolving context-CIRI
  - Results target
  - Vision for the future
- How QB can improve standards on-site
- Conclusions
Project Duration
1/11/13 – 30/9/16
(33 Month EU funded project)

Website: www.QualiBuild.ie

Social Media:
facebook.com/QualiBuild
@QualiBuild
QualiBuild

What is QualiBuild
The Partners and its Development

- **Pillar I - BUSI**
  - Findings from Status Quo Report
  - Overview of Roadmap

- **Pillar II - QualiBuild**
  - Actions and Plans
  - Irish Context
Analysis presented ‘perhaps’ unexpected result i.e. immediate focus needs to be on those currently employed in construction sector rather than Government policy of focus on unemployed.

Generally, crafts have good skills but lack of knowledge on how to apply these in low-energy building context.

Trainers within the apprenticeship system lacked skills and knowledge in relation to low-energy buildings.

Curriculum for craft training programmes not up to date.

Training programmes for renewables well established.

Training on energy efficiency systems and techniques mainly industry driven - fragmented.
Background

- BUILD UP Skills QuailBuild is focused on the findings from the Irish Build Up Skills Roadmap that the gap in providing Quality Building is one of Knowledge rather than Skills.
- It focuses on ‘neglected’ target groups such as building construction workers and trainers.
- It is based on a partnership approach with relevant organisations.
- Real impact will be through National Roll Out.
- The building Sector needs to respond.
## Target Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operative level</strong></td>
<td>This is at <em>operative level or a skill level outside of the formal apprenticeship training structure</em>, i.e. skills acquired through on site experiential learning, e.g. concrete workers, steel workers, glaziers, roofers.</td>
</tr>
<tr>
<td><strong>Craft level</strong></td>
<td>This is at a <em>qualified craft level where a formal apprenticeship</em> or equivalent training in a building construction related trade has been successfully completed.</td>
</tr>
<tr>
<td><strong>Supervisory level</strong></td>
<td>This is at a <em>specialist, supervisory or project management level</em> where a craft worker has progressed to a role such as a system installation specialist, site supervisor, small/medium sized building contractor or similar roles.</td>
</tr>
</tbody>
</table>
Roadmap Strategy to address two pillars

Knowledge

Finance

Partnership

System Thinking

Policy

Professional

Consumer

Worker

Quality

Quality
Main Focus

- The Irish Building Sector is the main focus of QUALIBUILD
- Quality Building is at the core of QualiBuild
- Building Construction Workers are the main target group of the project

FROM THIS

- Development of a ‘Good Construction Practice’ Information and Awareness Campaign’ will also be developed
- It is intended that Best Practice methods and communication will be developed to provide Quality Energy Efficient Buildings in Ireland with National Roll Out Plan setting out objectives for post 2020.
## Ambitious Targets

<table>
<thead>
<tr>
<th>Performance Indicators</th>
<th>Target within the action duration:</th>
<th>Target by 2020:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of training courses triggered by the action</td>
<td>Foundation Energy (Workers): 10 pilot courses Trainers: 4 courses</td>
<td>Foundation Energy (Workers): 2,400 courses Craft Specific: 1,000 courses on specific craft skills Supervisors: 400 courses</td>
</tr>
<tr>
<td>Number of people that will be trained</td>
<td>Foundation Energy (Workers): 200 Trainers: 100</td>
<td>Foundation Energy (Workers): 60,000 Craft Specific: 20,000 crafts people Supervisors: 10,000 people courses Trainers 200 Trainers</td>
</tr>
<tr>
<td>Number of hours taught in the frame of the courses triggered</td>
<td>Foundation Energy (Workers): 800 Trainers: 240</td>
<td>Foundation Energy (Workers): 51,000 Craft Specific: 51,000 courses on specific craft skills Supervisors: 80,000</td>
</tr>
<tr>
<td>Estimated specific cost to qualify each trainee</td>
<td>Foundation Energy (Workers): €600/worker Trainers: €1,500</td>
<td>Foundation Energy (Workers): €400 Craft Specific: €700 Supervisors: €2,500 Trainers: €800</td>
</tr>
<tr>
<td>Renewable Energy production triggered</td>
<td>1,340 toe/year</td>
<td>8,040 toe/year</td>
</tr>
<tr>
<td>Primary energy savings compared to projections</td>
<td>2015: 2,487 toe/year 2016: 14,921 toe/year</td>
<td>111,905 toe</td>
</tr>
<tr>
<td>Reduction of greenhouse gas emissions</td>
<td>2015: 7,230 tCO₂/year 2016: 43,380 tCO₂/year</td>
<td>350,000 tCO₂</td>
</tr>
<tr>
<td>No of workers on Quality Building Registration System</td>
<td>1,000</td>
<td>40,000</td>
</tr>
<tr>
<td>% of workers who perceived quality as important</td>
<td>10%</td>
<td>50%</td>
</tr>
<tr>
<td>€funding in place for Training Programmes</td>
<td>€1m</td>
<td>€40m</td>
</tr>
</tbody>
</table>
Objectives to achieve targets

- **Training**
  - Develop and validate a *Foundation Energy Skills programme* and roll out nationally
  - Develop, Validate and Implement a national ‘*Train the Trainers*’ course for 100 Trainers

- **Communication**
  - Create and implement a comprehensive *innovative communication campaign* focused on Quality Building

- **Quality Systems**
  - Develop and implement a *Quality Building Registration System*

- **Finance & Sustainability**
  - Mobilise €1m additional funding by project end
  - Transfer project outcomes to relevant agencies for National Roll Out
Expected Impacts

- **Training** the construction sector to provide Quality, Energy Efficient buildings
- Improve **Communication** between all sectors.
- Create a **Registration System** to develop skilled construction workers
- **Promotion and Exchange** of the QualiBuild experience Nationally and within the EU.
- A **National Roll Out** with **CPD** development of the construction skills and networks.
Endorsement/Support

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

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

SEAI
Sustainable Energy Authority of Ireland

ÚDARÁS FUINNIMH
Inmhártha
NA HÉIREANN
Environement, Community and Local Government

CIOB
The Chartered Institute of Building

Joseph Little Architects

NICER
National Irish Center for Energy Rating

NSAI
Standards

KNenergy
Sustainability in the built environment

CIBSE

ÉASCA
Environmental & Sustainable Construction Association

Gyproc
Saint-Gobain

AIEA
Association of Irish Energy Agencies

IGBC
Irish Green Building Council

HomeBond Technical

Institute of Technology Blanchardstown
Instituto Technológicó Bhaile Átha Cliath
WP3 Overview

1. Review of FES
2. EU Exchange of Best Practice
3. Train the Trainer Design
4. Train the Trainer & FES Validation
5. Train the Trainer Delivery
6. FES Pilot Training
WP3 – Train the Trainer

*Train the Trainer Programme, 4 module Special Purpose/Supplemental award*


**Approach**

- **Blended learning programme** to accommodate trainers in full-time employment
- **One day regional workshop and one day site visit** per module – 4 locations for each workshop
- Complemented by **learner manual and online activities** for each module
- **100% continuous assessment** through online activities, written assignments and reflective learning journals
WP 3 Aims
Action Keywords

Energy efficiency
Quality Build
System thinking
Attention to Detailing
Continuous Air-tightness
Controlled Ventilation
Comfort Levels

Keywords:
- Quality Build
- System thinking
- Attention to Detailing
- Continuous Air-tightness
- Controlled Ventilation
- Comfort Levels
Tasks-WP4

- **Review Existing Registration Systems** (Month 6 to 8)
- **Registration System Model Development** (Month 8 to 10)
- **Registration System Consultation** (Month 10 to 13)
- **Registration System Piloting** (Month 13 to 26)
- **Registration System Future Development Proposals** (Month 18 to 26)
- **Registration System Model Development** (Month 8 to 10)
Work Plan Timeline

**Task 1**
- **Review**
  - FÁS:
  - CSCS:
  - RECI:
  - RGII:
  - ABE:
  - OFTEC:
  - SEAI:
  - NSAI:
  - Guild of Master Craftsmen;
  - RIAI:
  - SCSI:
  - Others:

**Task 2**
- **Model development**
  - A central place to store, review, print and recall
  - Provide easy access and navigation for all users,
  - integrated with Online fees collection
  - Provide a complete ‘quality building training’ history
  - Be simple to use and follow

**Task 3**
- **Robust consultation**
  - Employers
  - Construction Industry bodies
  - Unions
  - Government bodies
  - Educationalists
  - Trainers

**Task 4**
- **Piloting**
  - List of activities
  - FES trainers from WP3
  - Voluntary emphasis
  - Linked to WP5 communications campaign

**Task 5**
- **Future Development**
  - Building Control Act reforms
  - Linkage with voluntary scheme of registration of builders

- **WP4**
WP4 Consultation

Consultation at National and EU level

- National Skills Academy-CITB
- German Craft Trades Congress (Deutsche Handwerkstag).
- Danish construction craft
- German-Irish Chamber of Commerce

Piloting
WP4 - Consultation

National
- Dundalk
- Waterford
- Cork
- Limerick
- Sligo
- Dublin

Denmark
- UK
- Germany
Aim & Objectives of WP5

- Develop a Quality Building Information and Awareness Campaign
  - Overcome the poor image associated with building in Ireland
  - Create opportunities to focus on a new, better, quality construction approach
  - Focus on changes being made to improve quality control and the systems thinking approach to low-energy buildings
  - Focus on quality and efficiency of new construction and retrofitting practices.
- Outreach to target groups amongst industry, craft workers, and building owners and occupiers
- Provide information and guidance to decision makers involved in procuring construction services.
- Focus on the need to use competent companies, products and systems and how to recognize such operators and quality
www.qualibuild.ie
Tools

- Dedicated website
- Flyers and other printed materials
- Articles in trade/mainstream media
- Interviews (print, radio, tv/web)
- Video materials
- Educational materials (from other WP)
- Social media
- In-person at events (building shows – trade and consumer), coffee talks, etc.
### Strategy - Figures, Targets and Actions

<table>
<thead>
<tr>
<th>Occupational Tier</th>
<th>Qualification Need</th>
<th>NFQ Level</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operative Level</strong></td>
<td>Foundation energy training (all construction operatives including concrete workers, steel workers, roofers and glaziers)</td>
<td>5</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>Craft Level</strong></td>
<td>Stage 1: Foundation energy training (for all construction crafts)</td>
<td>6</td>
<td>49,000</td>
</tr>
<tr>
<td></td>
<td>Stage 2: Craft specific energy training (for all)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Carpentry &amp; Joinery</td>
<td></td>
<td>16,000</td>
</tr>
<tr>
<td></td>
<td>• Brick &amp; Stone Laying</td>
<td></td>
<td>4,000</td>
</tr>
<tr>
<td></td>
<td>• Plastering</td>
<td></td>
<td>4,000</td>
</tr>
<tr>
<td></td>
<td>• Plumbing</td>
<td></td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td>• Electrical</td>
<td></td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td>49,000</td>
</tr>
<tr>
<td><strong>Supervisory Level</strong></td>
<td>Domestic Heating Technician</td>
<td>7</td>
<td>1,350</td>
</tr>
<tr>
<td></td>
<td>Ventilation Installation Technician</td>
<td>6</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>Combined Heat &amp; Power (CHP) Technician</td>
<td>7</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Site Supervisors/Foremen</td>
<td>7</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>Domestic Energy Retrofit Project Management</td>
<td>7</td>
<td>2,200</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td>7,230</td>
</tr>
</tbody>
</table>

*Note: completion of craft level training assumed*
Training Actions

- Introduce short Foundation Energy Training for all construction workers.
- Review apprentice curricula for construction crafts to incorporate knowledge and new skills related to low energy buildings.
- Develop a specialist training for each relevant craft.
- Develop a 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 necessary skills to manage implementation of low energy buildings.
- Train the Trainers.
Supporting Actions

- Introduce Industry driven market led training requirements.
- To support implementation of the Building Contractors register
- Provide for the upskilling of Building Control Officers
- Develop a ‘Good Construction Practice’ Information and Awareness Campaign
- Encourage a deeper engagement and exchange of information between the recognised professionals and construction workers in regard to their cooperation in achieving low energy buildings.
- Identify and develop sustainable funding mechanisms that will facilitate the provision of the training required
# Challenges and Evolving Context

**IRELAND’S CONSTRUCTION SECTOR: OUTLOOK AND STRATEGIC PLAN TO 2015**

**Forfás**

**Ireland's second National Energy Efficiency Action Plan to 2020**

**Nearly Zero Energy Roadmap for Dwellings**

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Part L</td>
<td>% improvement</td>
<td>Baseline</td>
<td>40% and renewables requirement</td>
<td>80%</td>
</tr>
<tr>
<td>Primary Energy (Avg Dwelling) kWh/m²/annum</td>
<td>150</td>
<td>90</td>
<td>60</td>
<td>45</td>
</tr>
<tr>
<td>CO₂ (Avg Dwelling) kg/m²/annum</td>
<td>30</td>
<td>18</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>EPBD BER (Avg Dwelling)</td>
<td>B3</td>
<td>B1</td>
<td>A3</td>
<td>A2</td>
</tr>
</tbody>
</table>

**STATUTORY INSTRUMENTS.**

S.I. No. 80 of 2013

**Building Regulations 2011**

**Register of Builders**

**CONSTRUCTION INDUSTRY FEDERATION**

**Comhshaoil, Pobal agus Rialtas Áitiúil Environment, Community and Local Government**
Results target

- Foundation Energy Skills & Train the Train programme nationally validated with
  - 200 crafts workers trained on Foundation Energy Skills Programme
  - 100 trainers trained
- Training content available for National Roll out
- Quality Building Registration System designed & integrated with other relevant systems
  - 200 workers registered on pilot system
- Quality Building Communications Campaign implemented on multiple levels engaging with >10,000 people
  - Media (web, radio, social media, publications etc.)
  - Events (seminars, conferences etc.)
  - Craft and Professional ‘coffee meets’
- National Roll Out Plan agreed with additional finance secured
- Evaluation of perceived importance of quality amongst workers
To go from this to this

A Foundation Energy Skills Programme
A Train the Trainers programme
A Quality Building Training Registration System
A Quality Building Communications Campaign
A Vision - Quality Building Pass

Quality Building Pass

Foundation Skills
Heat Pumps
Health & Safety

Air Tightness
Ventilation
Accessed by secure registered PIN

**Individual**
- Personal details
- Training History
- CPD courses
- Qualifications

**Accredited Trainers**
- On successful completion
- Dates

**Verify Online**
- Employers
- Client
How can the ‘QualiBuild’ program improve construction standards on-site

- Greater attention to detail
- Better attitude towards work
- Better standard of pay and conditions
- More multidisciplinary approach
- Better awareness by the public
- Awards for high quality
- More regulated therefore more accountability
- CPD requirement in the register
- Less insurance claim hence potentially lower premiums
Empowering the public e.g., PH clients
Raising of the bar leading to rising tide of awareness/acceptance
Significance of DLRC decision on PH much more than a regulation
Connecting the dots—great work around the country by the ICWI
Closing the knowledge gap but is it only a perception?

“Education isn’t the filling of a pail but the lighting of a fire”
Is there a greater threat from bad detailing now than there was in the past?
Conclusions

- QualiBuild creates opportunity to focus on previously ‘neglected’ target group
- Provides direction in filling the Knowledge gap
- Encourages national partnership development between relevant organisations - Built Environment
- Legislative Actions – voluntary to mandatory
- Presented opportunity to integrate actions into Government Policy
- Learn from lessons on SHWA
- Opportunity to get it right - yes we can
Contact

timothy.oleary@dit.ie