LuxBuild2020

National road map

Produced as part of the

European "Build Up Skills" initiative

August 2013

Further information

More details on BUILD UP Skills "LuxBuild2020" can be found at www.myenergy.lu

More details on BUILD UP Skills can be found at www.buildupskills.eu

More details on the IEE program can be found at http://ec.europa.eu/intelligentenergy

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National road map

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0 Preface

The European Union has set itself some ambitious objectives in terms of climate and energy policy, known as the 20-20-20 targets. By 2020, greenhouse gas emissions and energy consumption should be reduced by 20%, whilst renewable energies should represent 20% of the total consumption of primary energy.

Energy efficiency in the building sector is of exceptional importance as part of efforts to achieve the European Union's energy policy targets. Buildings represent 40% of total energy consumption and are responsible for around a third of greenhouse gas emissions. The potential savings are therefore enormous.

Energy-efficient construction work will need to be accelerated significantly over the next few years, however, in all European countries including Luxembourg. In the new-build sector, buildings will have to be either low-energy or effectively energy-neutral; above all, however, existing buildings will need to be optimised in energy terms.

The fear, however, is that without an adequate number of skilled workers, it will be impossible to meet the targets set by the European Union and Member States.

The "Build Up Skills" initiative therefore aims to improve the skills of building professionals in the areas of energy-efficient construction and energy optimisation.

The initiative is therefore primarily geared to continuing education and training for (blue-collar) workers in the area of energy efficiency and the use of renewable energies in buildings, following on from their initial education or training or initial experience of the workplace, including developing skills amongst workers who are unemployed.

Given that from 2017 inwards, all new residential construction in Luxembourg must meet AAA energy standard requirements and as the government's new "PRIMe House" financial aid scheme, which came into effect in January 2013, is designed to encourage more energy-related renovation work and the use of renewable energy sources, the demand for highly energy-efficient buildings is set to accelerate.

It is clear that the targets that have been set can only be achieved if there is an adequate number of skilled workers in the construction sector in Luxembourg. Skills are a fundamental element in implementing the national climate and energy policy.

The consortium backing the national project LuxBuild2020 is made up of myenergy, the Chambre des Métiers du Luxembourg and the Institut de Formation Sectoriel du Bâtiment (IFSB).

The consortium has produced a National Status Quo Analysis combining structural and economic data on the construction sector and information on the country's building stock, as well as information on existing training organisations and the training courses available on energy-related construction and renovation work.

The analysis aims to identify gaps in the skills of building workers and set out the measures required to remedy the shortcomings identified in skills road maps.

These must meet the criteria clearly defined in the “Build Up Skills” initiative.

The national road map developed under Build Up Skills should explain how to overcome barriers and identified skill gaps in the various professions in such a way that the building sector can contribute to the 2020 energy targets.

Therefore, the recipients of the road map are all players with the potential to contribute to overcome these barriers and skill gaps. Besides the organisations already involved in the national qualification platform, the road map is of interest to all the stakeholders who are in a position to support and undertake those initiatives consistent with the priorities and measures identified in the road map.

Once it has been produced, the road map must be endorsed by relevant national public authorities and key stakeholders such as social partners, craftsmen, building and industry associations, vocational training institutions, etc. in order to become part of the national strategy in the sector.[1]

[1] Criteria set by Intelligent Energy Europe for the development of national road maps.

1 Introduction

The road map is based on the National Status Quo Analysis of the construction sector and training of skilled tradespeople in Luxembourg. The analysis is published on http://luxbuild2020.myenergy.lu/.

The essential information from the status quo analysis is summarised in this chapter. In addition to information on existing buildings and the energy consumption they generate, the report provides details of the number of employees in the building sector and their training needs.

1.1 Key figures from the National Status Quo Analysis

1.1.1 Housing stock and energy consumption

As at 1st February 2011, Luxembourg had 130,901 residential buildings, including no fewer than 108,682 single-family houses, which equates to a remarkable 83.5%.

Year of construction	Total	Detached single-family house	Semi-detached house	Terraced house	Apartment building
pre-1919	13.6%	9.0%	13.8%	18.3%	7.0%
1919-1945	15.1%	5.9%	16.7%	30.3%	11.5%
1946-1960	13.5%	8.4%	16.3%	19.3%	14.4%
1961-1970	9.7%	10.0%	10.5%	8.5%	11.6%
1971-1980	12.9%	18.0%	11.8%	7.4%	11.3%
1981-1990	11.1%	18.0%	8.5%	4.5%	7.8%
1991-2000	12.5%	19.0%	9.6%	4.8%	15.3%
2001-2010	11.5%	11.7%	12.8%	6.7%	21.2%
2001-2010	11.5%	11.7%	12.8%	6.7%	21.2%

Source: STATEC

Fewer and fewer single-family houses have been built in recent years, however, and as a result their share of completed homes has decreased steadily. The number of apartments as opposed to individual houses is currently increasing; whilst they represent barely 12.5% of the existing housing stock, the figure increases to 54% for recently completed homes. The majority (42%) of buildings were completed before 1960 and it is reasonable to work on the assumption that in general, these were built to lower energy-efficiency standards. Between 2001 and 2011, barely 7% of newly built individual homes were constructed to “low energy” and “passive” standards.

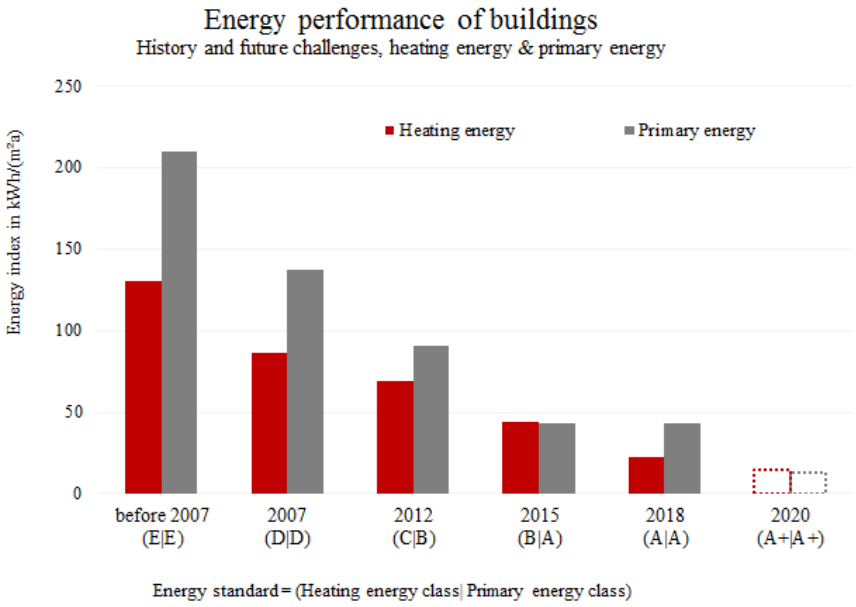


Image: Change in energy performance of residential buildings.

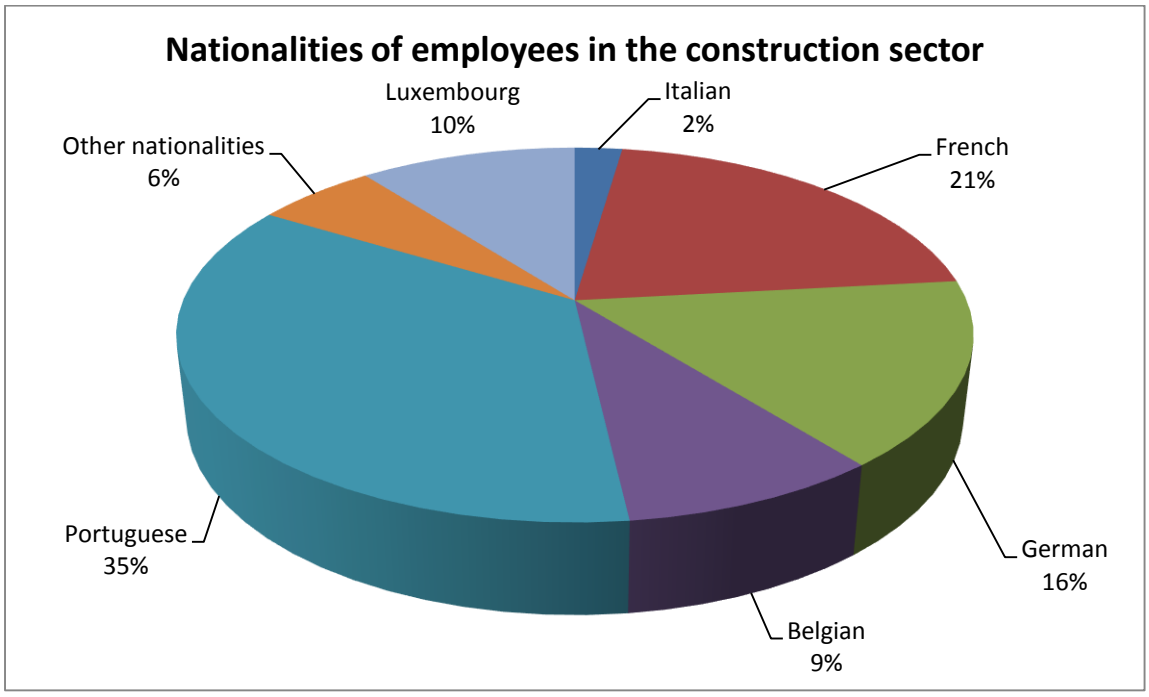
The Grand Duchy of Luxembourg is experiencing an increasing demand for homes, which can be explained primarily by a significant increase in the population due mainly to immigration. Over the last 20 years or so, the country has seen a significant demographic boom, which has led to an increasingly stark imbalance between housing supply and demand; this in turn has been exacerbated by a reduction in the number of people per household. Furthermore, the population increased by almost 30% between 1990 and 2009 alone. Since the start of the crisis in 2009, the population of Luxembourg has increased by a further 18,300 inhabitants (+3.71%) to reach a total of 511,800 by 1st January 2011. The consequence of all the above will be an increase in the number of households of 82,000 by 2030, which represents +/- 4,000 homes per year.

1.1.2 Employment and labour requirements in the building sector

The number of jobs in the building sector also changed remarkably between 1970 and 2012, with salaried employment increasing by 39,904 people, almost five times higher than in 1970. The building sector alone represents around 68% of the total labour force working in skilled trades in Luxembourg. In 2012, 40,413 of the 50,526 employees working in the building sector were (blue-collar) workers employed on building sites. The labour force employed in 2012 was predominantly male (>90%) and made up of barely 10% of Luxembourg residents compared with 48% from neighbouring countries. The statistics also show that the sector is an important vector for social integration: in 2012, 42% of employees were resident immigrant workers. This high level of foreigners in the construction sector is unique in Europe. Portuguese workers dominate the foreign labour force (35%) whilst 21% are French employees, primarily from the Greater Region. Over the last few years there has been evidence of Germans, who are the most well-qualified employees, increasingly joining the construction sector.

The increase in the proportion of cross-border workers in this sector shows that skilled trades are finding it increasingly difficult to find qualified workers in the Luxembourg labour market. The market

is open to workers in neighbouring countries, who are attracted by the more advantageous salaries compared with those available in other countries, and has until now allowed firms based in Luxembourg to access a diverse range of skilled workers and select those who best meet their needs. More recently, however, recruitment from neighbouring countries has proved increasingly problematic for businesses in Luxembourg, because of the fact that the supply of labour is decreasing in spite of an increase in the geographical scope of recruitment areas. The construction market therefore suffers from a shortage of skilled workers.



Source: Chambre des Métiers

Among the main problems identified in the building sector is the fact that Luxembourg has to some extent lost control over the qualification of its employees. Fewer and fewer workers have gone through the national education system: not all foreign resident workers, representing 42% of jobs in the construction sector, have been through the education system in Luxembourg.

In terms of the level of qualifications of blue-collar workers, we can state that in 2011, 29% of workers had no qualifications at all whilst 26% indicated that they had some experience in the sector. This therefore means that over half of workers have had no initial training in their occupation.

Forty per cent, however, achieved a *Certificat d'Aptitude Technique et Professionnelle* (Certificate of Technical and Professional Skills – CATP) at the end of their training. Just 5% of employees have a further *brevet de maîtrise* qualification.

As described in the status quo analysis, the theoretical need for labour in the areas of renewable energies, energy-efficient construction and energy optimisation by 2020 is some 15,000 people, which means +/- 1,800 people a year. If we analyse the current situation of success in the examination at the end of an apprenticeship, however, we find the alarming fact that an average of just 150 people a year enter the labour market following their initial training.

Success in the examination at the end of apprenticeships in the building industry					
Occupation	**2008**	**2009**	**2010**	**2011**	**2012**
Bricklayer	13	9	11	12	5
Heating, ventilation and air-conditioning installer	37	39	29	34	31
Bathroom installer	5	8	10	12	7
Electrician	43	40	44	34	54
Joiner	7	8	10	11	11
Locksmith	10	6	5	10	14
Roofer	3	11	6	12	5
Sheet-metal worker/zinc roofer	1	1	3	2	1
Carpenter	2	2	5	5	6
Ceiling/façade specialist	0	5	3	1	1
Painter/decorator	18	28	19	17	24
Glazier/mirror specialist	0	0	0	2	0
TOTAL	**139**	**157**	**145**	**152**	**159**

The number of *brevet de maîtrise* qualifications awarded is scarcely more encouraging. On average, around 60 people receive their qualifications each year.

1.1.3 Number of workers to be trained and training required

Based on the results of an on-site survey, the consortium was able to calculate training needs in the various building trades.

Occupation	Number of workers to be trained by 2020
Construction (Bricklayers)	4,500 - 5,000
Carpenter-Roofer-Sheet-metal worker	1,200 - 1,500
Heating-sanitation	1,800 - 2,000
Electrician	3,000 - 3,300
Ceiling/façade specialist	1,500 - 1,700
Outdoor joinery	800 – 1,000

As far as training needs are concerned, it is clear that the increasing number of skills that need to be mastered is a real challenge for the tradesperson of the future working in the field of renewable energies and energy performance. The results of the survey on the level of skills on building sites showed that there is a significant need for training in terms of a general understanding of energy-efficient buildings and renewable energies. The survey also noted a lack of understanding on the validity and usefulness of ensuring the building envelope is airtight.

As far as training methods for building workers are concerned, it is important to take account of the sector's specific characteristics, namely:

- Multilingualism
- The significant number of unqualified workers
- The significant number of workers who have come from different education systems

1.1.4 Barriers to achieving the 2020 targets

The list below sets out the principal barriers to achieving an adequate number of qualified blue-collar workers and the level of competence required in the building sector to achieve the targets set:

- Shortage of skilled workers
- The image of skilled trades (the construction sector suffers from a poor image and is really struggling to attract new entrants)
- National control over employees' qualifications (42% of employees in the construction sector are foreign residents, whilst 48% come from the Greater Region)
- Businesses' financial and human resources (small firms in particular do not have the necessary resources to provide their employees with training)
- The lack of trainers
- The lack of motivation for training amongst blue-collar workers
- Adaptation to technical changes (the construction sector is currently experiencing unprecedented growth and therefore needs to adjust to remarkable technical developments)

1.2 Methodology

Six workshops were organised in the offices of the Chambre des Métiers to involve the various stakeholders affected by the challenges related to energy efficiency.

Date	Topic
21.02.2013	Platform objectives and framework terms and conditions for qualification of skilled tradespeople by 2020.
21.03.2013	Incorporation of the "energy efficiency and building envelope" theme in training courses aimed at skilled tradespeople. The aim was to define how to incorporate the theme of building energy efficiency linked to work on building envelopes into training aimed at people working on the ground.
18.04.2013	Technical installations and renewable energies in the context of qualifications for skilled tradespeople. The aim was to define how to incorporate the theme of building energy efficiency linked to technical installations and renewable energies into training aimed at people working on the ground. Training is an essential element in improving employees' skills and contributes to improving know-how, thus guaranteeing the quality expected in construction work. During the workshop, participants were asked to work together to define the elements that should be included in both initial and ongoing training for trades with an impact on the energy efficiency of technical systems and renewable energies (bricklayers, façade specialists, carpenters, electricians and installers)
16.05.2013	Strategy for a change of attitude
13.06.2013	Definition of a general strategy for qualifying skilled tradespeople
11.07.2013	Definition of the LuxBuild 2020 action plan

	Meetings					
Organisation	21.02.2013	21.03.2013	18.04.2013	16.05.2013	13.06.2013	11.07.2013
Department of Employment (ADEM)	x		x			x
Department of the Environment		x	x			
Association des Patrons Electriciens du Grand-Duché de Luxembourg			x			
Association des Patrons Menuisiers				x		
Henri Tudor Public Research Centre	x	x	x	x	x	
Chambre des Métiers	x	x	x	x	x	x
Energieagence		x	x			x
Fédération des Artisans	x	x			x	x
Fédération des Conseillers et Certificateurs Energétiques		x	x			
Fédération des Entreprises de Construction et de Génie Civil				x		
Fédération des Industriels						
Fédération des Installateurs en Equipements Sanitaires et Climatiques			x	x		
Institut de Formation Sectoriel du Bâtiment	x	x	x	x	x	x
Institut de la Formation Professionnelle Continue	x				x	
Ministry of the Economy and Foreign Trade	x	x		x	x	x
Ministry of Education	x		x		x	
Ministry of Sustainable Development and Infrastructure					x	x
Ministry of Work and Employment, represented by ADEM	*x*		x			x
myenergy	x	x	x	x	x	x
Ordre des Architectes et des Ingénieurs-conseils	x	x	x	x		

Attendance at various working meetings

The working meetings of the LuxBuild2020 platform were used to develop this road map on the qualification of skilled tradespeople by 2020. This document includes the strategies developed and approved by members of the platform during the working groups. It represents a guiding thread at national level for the developing the qualification of skilled tradespeople in Luxembourg by 2020. It also serves as a basis on which to apply to the IEE's follow-up programme "Build Up Skills, pillar II".

The following organisations were systematically invited to the working groups in recognition of the fact that all key players in the construction industry need to be involved to guarantee energy-efficient buildings, to ensure their proposals could be incorporated and to update them on the progress of the project:

Lead partners to the project:

- ✓ Fédération des Artisans
- ✓ Fédil (Fédération des Industriels Luxembourgeois)
- ✓ OAI (Ordre des Architectes et des Ingénieurs-Conseils)
- ✓ Henri Tudor Public Research Centre
- ✓ Ministry of Education and Vocational Training
- ✓ Ministry of Work and Employment
- ✓ Ministry of the Economy and Foreign Trade
- ✓ Ministry of Sustainable Development and Infrastructure
- ✓ Department of Employment

Associated partners:

- ✓ INFPC (Institut National pour le développement de la Formation Professionnelle Continue)
- ✓ ILNAS (Institut luxembourgeois de la normalisation, de l'accréditation, de la sécurité et qualité des produits et services.)
- ✓ LCGB Lëtzebuerger Chrëschtleche Gewerkschaftsbond - Confédération luxembourgeoise des Syndicats chrétiens)
- ✓ energieagence
- ✓ Neobuild
- ✓ Chamber of Commerce
- ✓ Luxembourg School of Commerce

1.2.1 Platform objectives and framework terms and conditions for qualification of skilled tradespeople by 2020

The aim of the meeting on 21 February 2013 was to define optimal framework terms and conditions and describe the ways and means of achieving them.
By way of introduction, participants worked together on defining aspects that needed to be improved at the next meetings of the platform scheduled up to June 2013.
Using the 2020 forecasts, participants listed the main aspects of qualifying skilled tradespeople that would be essential for achieving the "20-20-20" targets to protect the environment.

2020 scenario: Buildings that are effectively "energy neutral" are being built throughout Europe. No problem for skilled tradespeople in Luxembourg: for the last three years, they have been building only AAA houses and mainly installing technical facilities based on renewable energies. Seventy per cent of firms have already mastered these construction techniques. They carry out Blower-Door tests to guarantee the quality of their buildings; the values they achieve once the tests are complete are always below the required threshold limits. Clients who want to optimise the energy efficiency of old buildings are always made aware of places that could be more or better insulated.
Qualified tradespeople with the skills for working on passive houses have better chances of finding work.
The only challenge posed by buildings that consume effectively no energy is linked to design and planning.

What needs to be done between 2017 and 2020 for this scenario to move from being a prediction to a reality by 2020?
Participants raised the following points:

- Relevant status quo analysis
- Improvement and development of ongoing training and basic vocational training
- Firms' motivation; change of attitude in businesses (employers and employees)
- Awareness-raising amongst all target groups: clients/main contractors, workers and planners
- Innovative, effective methods of raising awareness
- Target group of young people, as the new generation of skilled tradespeople
- Training and apprenticeships
- Motivation
- Early awareness-raising in schools
- Strategies to address the ageing profile of qualified personnel and shortages of qualified personnel

1.2.2 Incorporation of the "energy efficiency and building envelope" theme in training courses aimed at skilled tradespeople

Given the importance of involving everyone working on-site (from designers to workers on the ground) to guarantee energy-efficient buildings, the aim of the workshop on 21/03/2013 was to define how to incorporate the theme of building energy efficiency linked to work on building envelopes into training aimed at people working 'at the coalface'.
Training is an essential element in improving employees' skills and contributes to improving know-how, thus guaranteeing the quality expected in construction work.
During the workshop, participants were asked to work together to define the elements that should be included in both initial and ongoing training for trades with an impact on the building envelope, namely bricklayers, façade specialists, carpenters, electricians and heating installation experts.

1.2.3 Technical installations and renewable energies in the context of qualifications for skilled tradespeople

The aim of the workshop on 18 April 2013 was to define how to incorporate the theme of building energy efficiency linked to technical installations and renewable energies into training aimed at people working on the ground. Training is an essential element in improving employees' skills and contributes to improving know-how, thus guaranteeing the quality expected in construction work.
During the workshop, participants were asked to work together to define the elements that should be included in both initial and ongoing training for trades with an impact on the energy efficiency of technical systems and renewable energies.

1.2.4 "Mind Change Strategy"

The workshop on 16 May presented the results of the electronic survey carried out with 500 skilled trade businesses working in the area of energy efficiency and renewable energies. The aim was to implement a common strategy with a view to changing attitudes in the building sector. The workshop was split into three main sessions:

a. Warm-up session based on three questions:
- Their definition of the concept of energy efficiency
- Their position on this topic
- Their perception of legislative requirements.

b. Presentation of the results of the electronic survey
c. Two working sessions in semi-structured groups

- Opportunities for businesses in Luxembourg in response to the excitement over energy efficiency
- Barriers to tackling the opportunities presented and solutions for turning challenges into opportunities.

1.2.5 General strategy for qualifying skilled tradespeople

The first outline of the LuxBuild 2020 road map was presented at the workshop on 13 June. This focused on general strategies for training, support measures and the structural reforms needed to guarantee better-qualified skilled tradespeople and gave participants the opportunity to comment on and validate the initial results.

1.2.6 Road map: action plan

The final LuxBuild 2020 action plan was presented at the workshop on 11 July and participants had the opportunity to comment on and validate it.

2 General strategy

Compared with other sectors, the building sector in Luxembourg has somewhat lagged behind in training its employees. The status quo analysis and the introduction have already referred to the fact that the profile of salaried employment in the country's construction sector varies widely, in terms of both training and skills. At the same time, the deadline for tackling the challenges set by legislation in

Luxembourg has been brought forward to 2017. As a result, an initiative on training is absolutely essential.

The LuxBuild2020 platform is convinced of the fact that the success of a training initiative for the country's skilled workers is based on two pillars:

1. an adequate supply of high-quality training courses for skilled tradespeople with different levels of education
2. a significant shift in attitudes in the skilled trades in order to increase their sense of responsibility and take the initiative for training staff based on the business's specific needs.

As a result, the training measures described below and the "support measures" complement each other. It is only the interaction between both kinds of measure that will guarantee the success of any training initiative.

Surveys carried out for the LuxBuild2020 project with business owners and foremen have shown the extent to which there can be significant barriers.

- A minority of business owners and team leaders are aware of the scale of the changes they will have to address by 2017/2020.
- Most business owners do not know how to react to them.
- They do not see the necessity of their employees being properly qualified and are waiting for the public authorities to force them to act.
- Until now, few employees have taken specific training courses linked to the topic of energy efficiency.
- Business owners' social responsibility is quoted as a key element and driving force, but does not seem to have borne fruit.

It is clear that the failure to develop comprehensive know-how in relation to energy efficiency will result in a difficult situation in respect of ensuring employees in the construction sector are qualified and for the survival of businesses in the sector.
The main solutions for driving a change of attitude are:

- Communications targeted at businesses on challenges and opportunities. Considerable efforts need to be made with business owners to ensure that they realise the gravity of the situation, the scale of the risks they are running and the necessity of taking part in a collective effort to bring the skilled trades sector of the construction industry up to standard
- communications targeted at young people and those responsible for careers advice in schools to promote occupations in the skilled trades
- Communications targeted at end clients on the advantages of more sustainable homes and workplaces (comfort, health, etc.)
- the introduction of specialist training courses that reflect the needs of business owners, supervisory staff and employees
- a reorganisation of the value chain and a reassessment of the role of key players who specialise in the skilled trades: a team-based approach and shared values

- Increasing the attractiveness of the occupations concerned with concerted awareness-raising and communications initiatives, vocational training and increased interaction with representatives of the Ministry of Education with regard to initial training.
- cross-sectorial organisation for interoperability on the building site, which would help to increase efficiency and extend interoperability in terms of identifying solutions and dealing with problems at the level of the various project managers working on a construction and/or renovation project

During its various working meetings, the LuxBuild2020 national platform developed numerous proposals for tangible actions related to the two pillars under discussion, namely training initiatives and changing attitudes. Its proposals are subdivided into

> Training measures

> Support measures

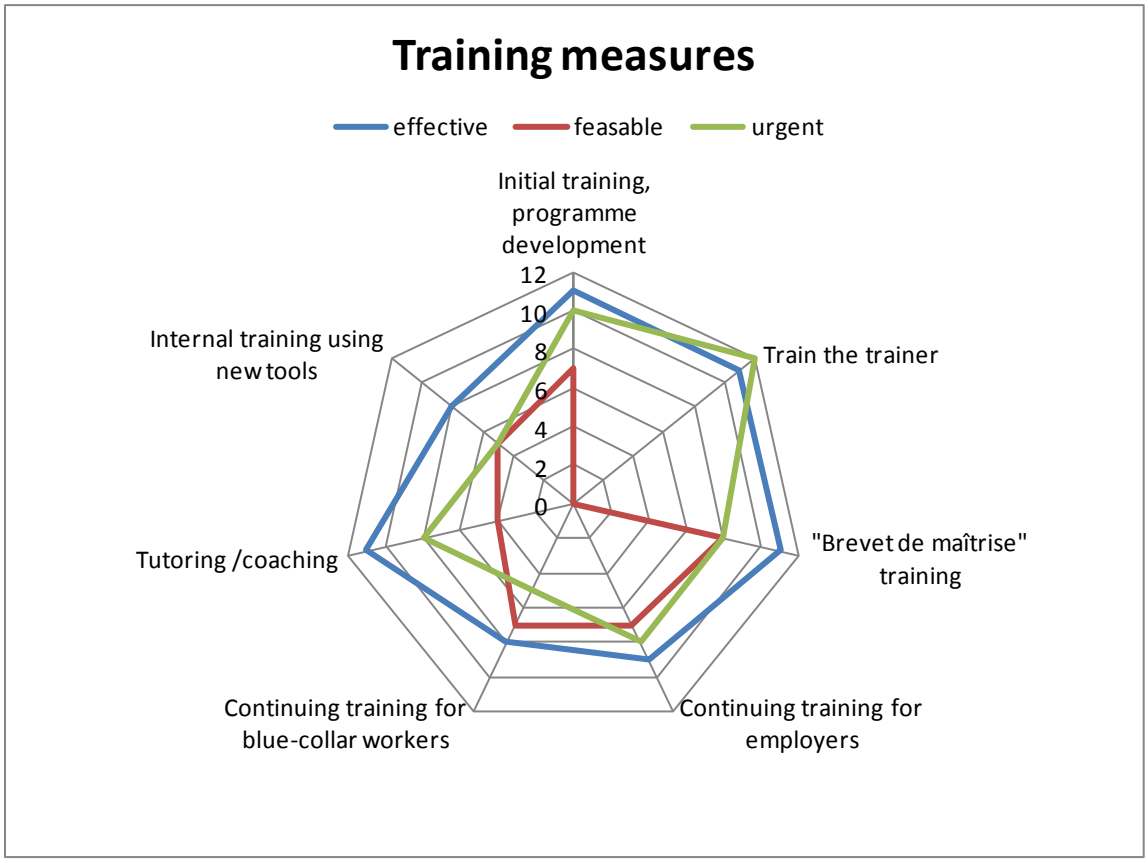
> Structural reforms

Some measures are already complete whilst others still need further development. This can be done in the context of “Pillar II” project proposals.

2.1 Training measures

2.1.1 Evaluation of training measures by the national platform

The graph below shows the results of the evaluation of training measures carried out by members of the national platform during the workshop held on 13 June 2013. The measures proposed and evaluated are the results of previous workshops. Members were also able to assess the categories “effective”, “feasible” and “urgent”.



2.1.2 Initial training

1.	Update of initial training measures

Currently, the topic of energy efficiency is only included in initial training to a limited or inadequate extent. Initial training programmes need to be updated. The platform recommends that the programme committee should consult with the LuxBuild2020 initiative to ensure close collaboration. The aim of such collaboration is to link programmes to the actual needs of businesses.

The occupations concerned are: bricklayer, ceiling/façade specialist, carpenter, roofer/sheet-metal worker/zinc roofer, joiner, heating and bathroom installer and electrician.

DAP (*Diplôme d'aptitude Professionnelle*) programme content: Study programmes should incorporate more modules relating to the energy efficiency of technical systems. Holders of a DAP have some responsibility on-site but will not necessarily be specialists; they must, however, know the various rules relating to energy-efficient buildings. They must have an overall view of the site and the activities of the various trades. This means that future skilled tradespeople will have to be aware of the impact of their work on that of other people working on the site and particularly the damage they could cause (especially for the building envelope). Basic competencies should be acquired in the following areas: airtightness, thermal bridges and insulation, all of which should be incorporated in initial training.

CCP (*Cerificat de capacité professionnelle* – Certificate of Professional Competence) programmes do not include specific modules in energy efficiency. It has been emphasised that people who take a CCP course rarely know which fields they want to work in; they are often assistants to qualified workers. According to installer representatives, there is no need to incorporate details relating to energy efficiency in technical systems.

2.	Course development: a more practical focus

From a teaching point of view, training courses should include visual aids such as photos, videos and diagrams to make the training more attractive and more dynamic and to ensure better comprehension. This type of presentation also offers the advantage of making it easier to acquire knowledge.

Focusing initial training on a more practical approach, i.e. the fact of having to tackle real situations and having to carry out practical tasks as they would on a building site, also appears to be very important to participants.

3.	Train the trainer

Given the rapid changes in the construction sector with the appearance of new products, new implementation techniques and new management systems, it seems essential for trainers delivering training courses to update their knowledge on a regular basis.

2.1.3 Continuing education for blue-collar workers

1.	Creation of a qualifications framework by trade

Constructing high-performance energy-efficient buildings now demands new know-how and greater precision on work on-site. This means that businesses and their employees will have to develop new skills in preparing and carrying out their work. Moreover, constructing airtight buildings without thermal bridges means that all trades need a general understanding of the building envelope.

Following the discussions that took place during its working meetings, the national platform felt it would be useful to create a skills framework for each trade.

The aim of the framework would be to provide precise points of reference on a consensual basis. It would be a transparent document that would change over time, presented in the form of a list, setting out and providing details of all the skills and aptitudes required to practise a particular trade.

Ideally, competencies would be defined on the basis of analysing the occupation someone was preparing for and identifying the necessary knowledge and skills based on practice.

The existence of explicit frameworks developed on a comparable basis would help to compare closely related occupations based on a firm foundation and reach a reasoned decision on both the degree of specialisation and areas that could be taught in common.

2.	**Development of continuing education courses on general knowledge of energy-efficient construction**

Since 2012, the Chambre des Métiers has been running a series of training courses entitled “Energie fir Zukunft +”, which is aimed at managers and technical executives in skilled-trade businesses and designed to train them in the new energy standards. An important part of this programme is a common core made up of elements such as the interfaces between different trades, the various stages of passive construction, air tightness, etc.

It seems obvious that blue-collar workers should also have a basic general knowledge of energy-efficient construction so that they are able to understand building standards but also the work of other trades working on the site.

Given the significant number of blue-collar workers to be trained each year, courses should primarily offer solutions that both guarantee good-quality training and make it possible to train a large number of workers in a minimum amount of time. These courses could be provided through training organisations, on-site or internally, within businesses. Given the significant number of foreign workers, courses should be run in French, German and Portuguese and, if necessary, the languages of the former Yugoslav republic.

The aims of continuing education are as follows:

- Enable better communication between different firms
- Give operational staff a sense of responsibility
- Ensure they respect the work done by other people

- Improve the quality of work
- Improve coordination between firms
- Improve employee motivation by valuing the importance of their work
- Incorporate new technologies and new products

“General knowledge of energy-efficient construction” courses should address the following areas:

- Basic concepts in energy-efficient construction, AAA and BBB buildings
- Definition and location of the heated envelope and the non-heated area
- Overall view of construction as a system, the importance of the quality of work carried out by each trade and the knock-on effects of one piece of work on another.
- Air tightness:
    - Air tightness in block construction and timber construction
    - Understanding of other trades
- Thermographie and Blower Door Test

3.	**Development of continuing education courses on specific knowledge of various trades**

The consortium realised, at the time of the on-site survey carried out in early 2012, that a fair number of the blue-collar workers questioned did not have the necessary understanding of the specifics of energy-efficient construction in their own trades. It will therefore be important to offer training courses that are specific to the various trades, with a practical focus. These courses could complement the general-knowledge courses outlined in the previous section.

The aim of the specific courses will be to put participants in real situations such as those they are likely to face on an energy-efficient building site. In tangible terms, they will be able to carry out various tasks, for example installing exterior joinery, installing solar panels, insulating a roof, etc. These courses will have to be delivered at “life-size” educational facilities and, like the general-knowledge courses, in several languages.

The elements to be included in specific training courses for bricklayers are:

- Depending on the materials used, knowledge of rules and areas requiring particular attention (for masonry, for example, they should know how to create a thermal break between the heated and non-heated areas)
- Know how to determine the heated and non-heated area
- Know how to apply surface coatings correctly to ensure air tightness
- Know how to install materials to avoid thermal bridges
- Be aware of the importance of installing ducting and technical elements
- Understand the various airtight materials
- Importance of air tightness of screeds

The elements to be included in specific training courses for carpenters are:

- Connections between various vertical walls and timber structures

- Insulation of service ducts, roof lights and elements in the roof space (chimneys, ventilation shafts, etc.)
- Understanding of the activities of various trades and other activities that will interact with the work done by the carpenter (before and after)
- Understanding of preparatory tasks to be included in carpentry work and for the trades that follow
- Detailed technical sections of solid wood, ducting of installations and electrical work

The elements to be included in specific training courses for ceiling and façade specialists are:

- Know how to apply surface coatings correctly according to manufacturer's instructions
- Understanding of the activities of various trades and other activities that will interact with the work done by the façade specialist (before and after)
- Understanding of preparatory tasks to be included in the work of the façade specialist (for example, positioning of thermal break boxes to run electric cables)
- Importance of re-sealing junctions between surface coatings and other elements (for example, between a plaster coat and concrete slab)

Elements to be included in specific training courses for electricians and heating installers

- These two trades are often involved in numerous risks of defects where elements run between the heated and non-heated area and this must therefore be taken into account in training
- Learn how to produce a preparatory plan for work to be carried out, including precise details of all cable runs (taps, solar installations, sockets, blinds, alarms, etc.)
- Include in the training the importance of positioning equipment appropriately (for example, the power supply for shutter boxes and installing an electrical housing)
- Understand the importance of air tightness
- Understand various practical aspects of installation (sleeves, etc.)
- Understand the importance of smart meters and their installation
- Explain the consequences of temporary installations and that it is important to avoid them as far as possible
- Understand ventilation systems

4.	**Development of teaching facilities for practical continuing education**

As mentioned in section 3, practical courses will have to be delivered at "life-size" educational facilities. This will enable participants to work on practical exercises and test their workmanship in line with industry practices. Participants must be able to take part in exercises where they are directly faced with errors of workmanship. This will obviously involve access to teaching facilities such as show houses, buildings designed specifically for teaching, parts of buildings on which various trades can work, etc. Given that such facilities are effectively non-existent in Luxembourg and given the significant number of blue-collar workers to be trained, the lack of teaching facilities for practical continuing

education is a major problem. Moreover, existing facilities are scarcely appropriate for the needs of energy-efficient construction.

This problem will need to be resolved as quickly as possible, as training the significant number of people (a minimum of 1,800 per year) required by 2020 will be very difficult on the basis of existing facilities.

5.	**Train the trainers**

Creating training programmes for energy-efficient building is one thing; finding qualified trainers is quite another.
Responding to the issues of energy-efficient building and renewable energies means having access to competent, well-trained professionals.
Professional practices need to develop not only in technical areas (insulation, ventilation, airtightness, installation of renewable energy systems, etc.) but also in the overall approaches between trades.

Training teachers and trainers is a necessity from this perspective and establishing training for trainers should, in the long term, help to develop a centre of training resources at a national level.

Skills needs in several areas have been identified to help trainers prepare professionals in the building sector to respond to future construction requirements:

- apply the overall approach at an operational level: specify the changes that the overall approach is introducing into professional practices. Identify the impact on the teaching methods to be used

- develop technical skills specific to each trade

- enhance trainers' teaching skills: in terms of teaching, trainers are asking for topics such as project management, problem-solving methods, cooperation and team working.

Currently, Luxembourg does not have a sufficient number of trainers and in particular it lacks multilingual trainers, the consequence of which is that it will be impossible to be able to train skilled trades' people within the requisite time frame. As a result, it will either be necessary to train trainers in existing continuing education structures or implement "Train the Trainer" initiatives to train tutors who will then run internal training in firms.

6.	**Development of in-house coaching**

Coaching is increasingly being seen as a strategic tool for knowledge capitalisation and passing on know-how. Moreover, it gives employees in the business concerned access to high-quality professional training programmes and a guarantee that training is precisely tailored to the needs of the business.

Coaches must be able to prove their technical skills and know how to express technical and functional information in formal terms. Deciding to be a coach means reflecting on both one's own activity and practices and the firm's activities. It requires an ability to convert a work situation into a learning situation.

Developing and optimising coaching could be a positive solution for Luxembourg as a way of guaranteeing training for blue-collar workers. Given that existing structures will scarcely be able to tackle this enormous challenge by themselves, businesses could train their own employees on new, energy-efficient construction technologies.

There will be a need to implement communications campaigns, methods, processes and tools to prepare coaches for their role, and to raise awareness and encourage firms to engage with work-based learning and promote coaching.

7.	**Development of teaching materials for continuing education for manual workers**

Ensuring that the least well-qualified workers do not find themselves excluded from continuing education undoubtedly involves moving away from a classroom-based model. It presupposes overturning existing learning methods and as a result, developing new teaching tools to improve workers' knowledge.

Training aids should be primarily visual – images, diagrams, maps, etc. – as they are a powerful means of supporting comprehension and memorisation. Whether they are shown on a screen, posted, manipulated or taken away by the student, visual materials are important teaching aids that highlight essential information. This is equally true of training programmes organised by training institutes and for in-house or on-site training.

Another important element of new teaching tools is obviously practice. All training for blue-collar workers must take account of the fact that workers in the construction industry prefer training to be practical rather than theoretical. This in turn will mean adapting courses, teaching tools and learning materials.

The list below sets out some of the suggestions discussed at the national platform during the workshop in question:

<u>Visual:</u>

- Development of visual aids: videos and photos explaining energy-efficient buildings, air tightness, thermal bridges, good installation practices, etc.
- Creation of posters, pocket cards or catalogues with details of work carried out by various trades
- Development of a visual guide to classic errors of workmanship by trade
- Development of checklists summarising preparatory work and items to check once work is complete
- Development of "serious games" *(serious games are a training, communication and simulation tool and can in some sense be seen as a useful version of the video game for professional purposes)* to explain the construction of passive buildings.

- All visual or multimedia aids must be produced in the languages workers usually use (German, French and Portuguese as a minimum)
- …

Practice

- Creation of teaching models related to energy-efficient construction
- Provide specific exercises for each trade, highlighting errors of workmanship
- Provide the possibility of observing Blower Door and thermograph tests on-site
- …

8.	**Development of a website as a repository for the teaching tools created**

A website should be developed as a repository for all the teaching and learning information, aids and tools developed to give professionals access to information on energy-efficient building.

This will allow tradespeople to view the information they need at any time; logically, the site will be a very important resource and provide support for their work and training both in-house and on-site.

9.	Update to the *brevet de maîtrise* qualification training course

The *brevet de maîtrise* is the leading qualification for skilled tradespeople in Luxembourg. It should therefore provide detailed knowledge of energy-efficiency techniques and renewable energies. In practice, energy efficiency is not sufficiently well covered in *brevet de maîtrise* training courses and training programmes should therefore be updated. The platform recommends that the programme committee should consult with the LuxBuild2020 initiative to ensure close collaboration. The aim of such collaboration is to link programmes to the actual needs of businesses.

The occupations concerned are: bricklayer, ceiling/façade specialist, carpenter, roofer/sheet-metal worker/zinc roofer, joiner, heating and bathroom installer and electrician.

Study programmes should incorporate more modules relating to the energy efficiency of technical systems. Future skilled tradespeople will have to be aware of the impact of their work on that of others and particularly the damage they could cause (especially for the building envelope). High-level competencies should be acquired in the following areas: airtightness, thermal bridges and insulation, as well as specific technical expertise in the various trades concerned.

2.2 Support measures

The LuxBuild2020 national platform has identified two key support measures for implementing a training initiative in the construction sector with a view to optimising the qualifications of blue-collar workers.

- Harmonised, structured communications aimed at target businesses, blue-collar workers and young people as future skilled tradespeople and consumers
- LuxBuild2020 gateway

Harmonised, structured communications

Harmonised communications designed to drive a shift in attitudes is an essential measure in terms of successfully motivating the construction sector and in particular, small firms of skilled tradespeople, to prepare for the challenges ahead. These challenges must be clearly identifiable so that they can be turned into opportunities. The platform is proposing the creation of a central organisation to ensure communications that are both coherent and targeted in relation to businesses and current and future tradespeople. The creation of a “sustainable construction information centre” seems to be a positive approach in this case.

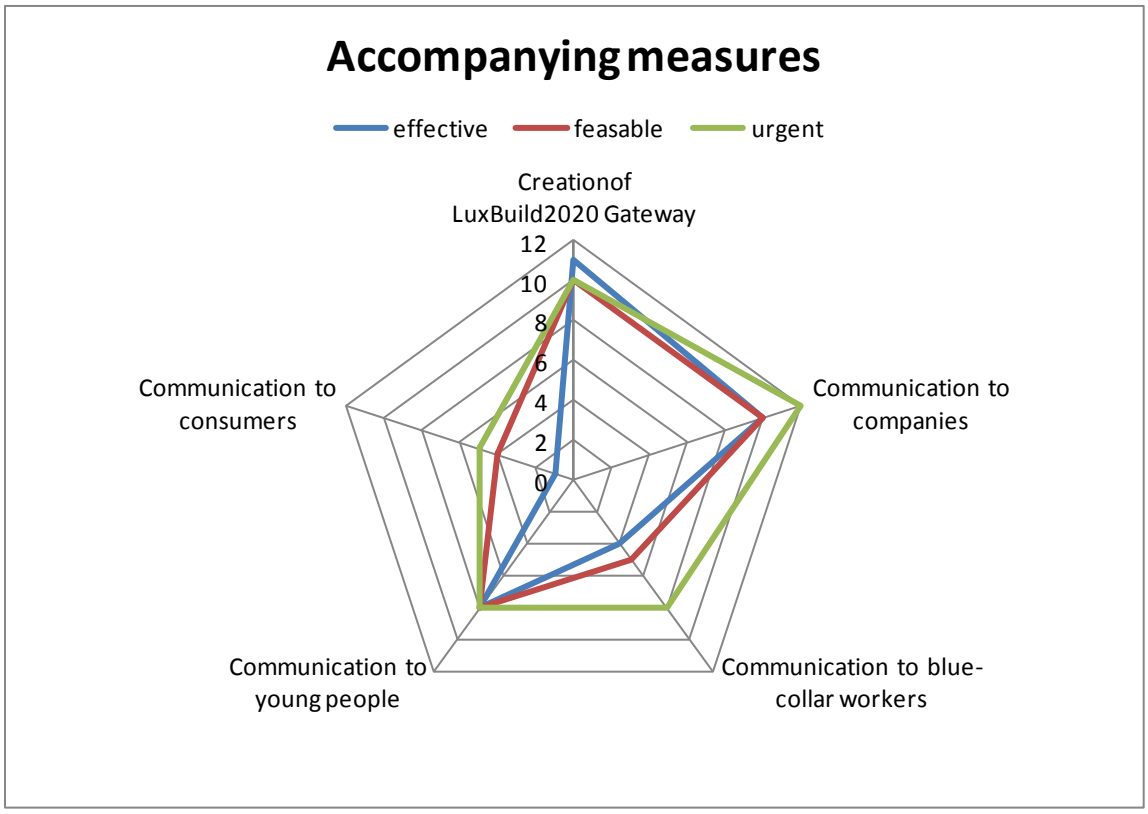
LuxBuild2020 gateway

Once the shift in attitudes mentioned above has been achieved, the question arises of how to tackle employee training within firms on a practical basis. To do this, firms will need a wide range of information and practical advice, which must be available rapidly.

2.2.1 Evaluation of measures by the national platform

The graph below shows the results of the evaluation of support measures carried out by members of the national platform during the workshop held on 13 June 2013. The measures proposed and evaluated are the results of previous workshops. Members were also able to assess the categories “effective”, “feasible” and “urgent”.

The platform was unanimous in its evaluation of the LuxBuild 2020 gateway. This was seen as effective, urgent and achievable by all members. As a result, this measure is recommended as a project to implement in phase II of the “Build up Skills” initiative.



Assessments of the effectiveness and urgency of a communications campaign varied by target group. The priorities identified by different targets were as follows:

1. Businesses
2. Young people (future tradespeople)
3. Blue-collar workers
4. Consumers

More sophisticated information and awareness-raising measures aimed at end customers were requested during the various workshops, with the aim of stimulating demand and as a consequence, increasing firms’ motivation to ensure their employees were properly qualified. myenergy is the national information and awareness-raising organisation, whose activities are targeted specifically at end customers. myenergy develops and implements actions in this area on an ongoing basis and

conducts market research studies to ensure its effectiveness. Communication targeted at end customers is therefore not addressed in the context of this programme.

2.2.2 Support measures

1.	Creation of a sustainable construction information centre

A sustainable construction information centre should fulfil several complex functions and in particular, be capable of bringing together various key players. This is a central organisation, which acts as a meeting place for stakeholders such as planners, builders and consultants and guarantees consistent communication, thus helping to identify common objectives.

A typical example is the regulation on “energy efficiency of residential buildings”, which provides for a gradual increase in energy efficiency by 2017, with the aim of requiring homes to be built to AAA standard from 2017 onwards. This information is familiar to a majority of planners, but as far as skilled tradespeople are concerned, it was apparent that scarcely 40% are aware of the construction standards they are required to adhere to and implement by 2017. Against this background, the regulation has not been successful in triggering training initiatives despite the need for them amongst skilled tradespeople; the majority of them are therefore unaware of the scale of changes this will bring to the construction sector and as a consequence do not know how to address them. There will therefore be a need to run information and awareness-raising sessions for directors and executives in building firms.

An information centre could help avoid information shortages of this kind by taking a proactive approach and ensuring a substantial presence amongst all key players. It will play a central role in raising awareness and motivating key players, as well as acting as a central point of contact for technical information.

Given its information and awareness-raising roles, myenergy has offered its services as a lead organisation in this area. It is important to ensure close cooperation between professional federations, in particular the Fédération des Artisans, the Chambre des Métiers and the Ordre des Architectes et des Ingénieurs-Conseils.

Role of a sustainable construction information centre

- Knowledge development in the areas of energy efficiency and renewable energies
- Knowledge dissemination in the areas of energy efficiency and renewable energies
- Support for knowledge development in the areas of energy efficiency and renewable energies
- Information and awareness-raising for professionals
- Network of sustainable construction professionals
- Promotion of sustainable construction

Target groups for a sustainable construction information centre

- Skilled tradespeople, business owners and executives in construction and completion firms

- Young people as future tradespeople
- Architects and engineers
- Energy consultants

Tools for a sustainable construction information centre

- Website for disseminating information and examples of best practice
- Regular meetings for professionals in the sector to share opinions
- Information session on current regulations for business owners and directors

2.	Creation of a LuxBuild2020 gateway common to all businesses in the construction sector

As far as employee training is concerned, the construction sector is prudent and moderate compared with other sectors. Given the new challenges ahead (AAA houses by 2017) and the ongoing shortage of qualified labour, economic and competitive problems are expected to arise in future. There is therefore an urgent need for a training initiative.

In addition to ensuring the provision of high-quality training (see training measures) it is important to trigger a shift in attitudes so that employees are actually sent on training courses. In this respect, the LuxBuild2020 gateway will contribute to making access to training as easy as possible in order to eliminate barriers and potential obstacles. Many SMEs and skilled trade businesses are overloaded with work and struggle to free up time to plan their staff training or to submit applications for financial support for training.

This is precisely where the LuxBuild2020 gateway can help. The LuxBuild2020 gateway should play a facilitating role and develop synergies. The principle of the gateway's practical operation, namely whether it will be an independent organisation or whether it will be attached to an existing structure, is a point that will need to be clarified as things proceed. It is conceivable that the gateway will become an integral part of a sustainable construction information centre run by the Chambre des Métiers or a central government information organisation.

The question of funding for the LuxBuild2020 gateway is closely related to what kind of organisation it will be, i.e. either a standalone entity or a department within an existing structure. Different funding approaches are possible depending on the response to this question.

Role of the LuxBuild2020 gateway

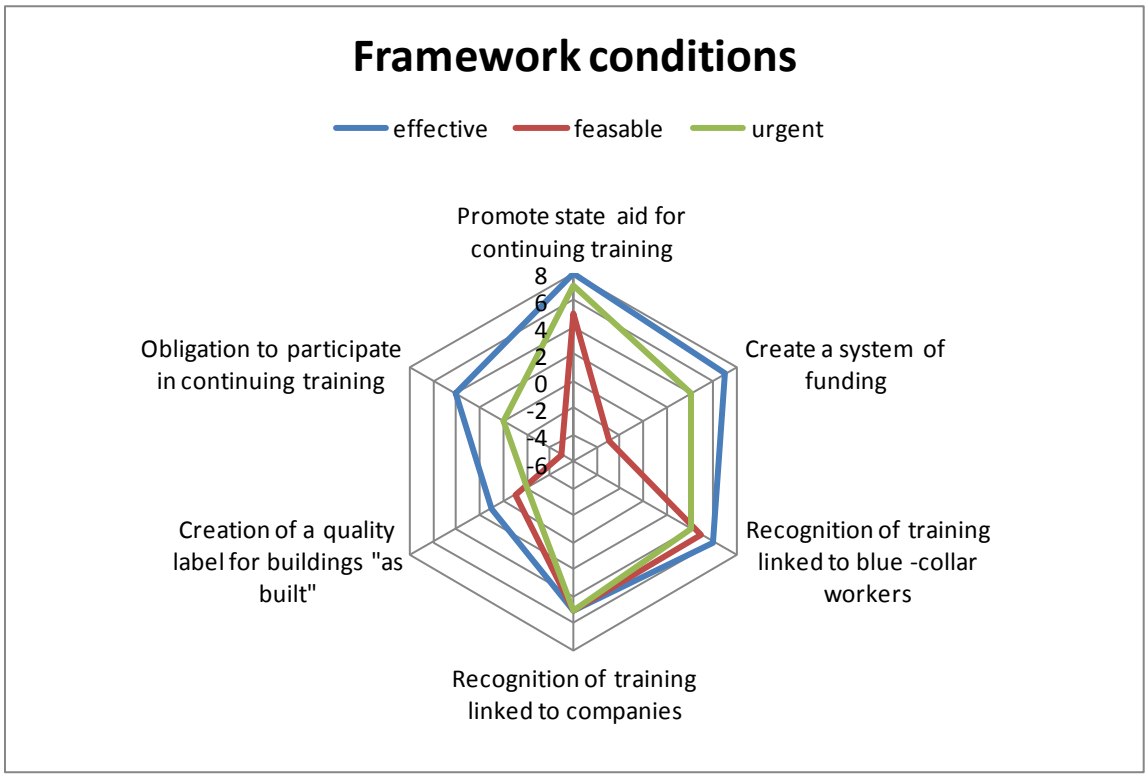
- Information on suitable existing training courses
- Production of training plans
- Information on funding for existing training courses
- Help with completing funding applications for training
- Information for young people: promoting a more positive image of skilled trades
- Information for blue-collar workers of the training courses available and aimed at them
- Information on new occupations for ADEM placement advisers
- Information for career services staff

2.3 Structural reforms and framework conditions

An increasing sense of responsibility in the construction sector in relation to ensuring skilled tradespeople are properly qualified and shifting training-related habits are the keys to success for improving competencies in the skilled trades. The platform's view is that there is a need to implement a structural change and new framework conditions to reflect the objectives that have been set.

2.3.1 Evaluation of "framework conditions" measures by the national platform

The graph below shows the results of the evaluation of support measures carried out by members of the national platform during the workshop held on 13 June 2013. The measures proposed and evaluated are the results of previous workshops. Members were also able to assess the categories "effective", "feasible" and "urgent".



Among the "structural changes" discussed by the platform, three will be difficult to achieve: the obligation to provide training, the creation of a quality label for "as built" buildings and the creation of a system of pooled funding for training. The "obligation to provide training" and "quality label" measures will therefore not be considered in relation to the action plan (see chapter 3). The question of a pooled funding system for training, however, has yet to be considered.

As far as funding for continuing education is concerned, the point on the promotion of state aid for training continues to be viewed as highly effective, achievable and urgent and has been included in the action plan.

Recognition for training could be linked to both the business and to workers. According to the platform evaluation, recognising training linked to participants themselves is the most effective measure. Until now, representatives of skilled trade firms have, however, been reticent on this question.

2.3.2 Proposals for structural reforms and framework conditions

1.	Promote existing state aid for continuing education

The legislation on continuing vocational education allows businesses that are legally established in Luxembourg to take advantage of financial support for their training plans. This is intended to provide support for business in their efforts to develop their employees' skills.

Just 14% of businesses with 10 employees or more in the construction sector took advantage of this option in 2011. Indeed, if we look at all businesses, the figure comes out at 5.7%. This may be due to the fact that the system is still unknown. It is essential to spread the word about co-funding arrangements of this kind more widely as part of a communications campaign.

Targeted advertising and information concerning existing support should, in an initial phase, help to overcome obstacles with regard to employee training. Cooperation with the LuxBuild2020 gateway is planned for this measure.

2.	Recognition of training courses

There was a lot of discussion on recognising training programmes in the platform. Two possibilities emerged:

- Recognition/certification of blue-collar workers (recognition of courses related to blue-collar workers)

  or

- Recognition/certification of businesses that make a commitment to ensuring their employees are qualified (recognition linked to the business providing the training)

Given Luxembourg's specific situation, recognising businesses that are taking steps to ensure their employees are qualified is a useful means of progressing the training initiative required. Luxembourg cannot cover all the qualifications needs of skilled tradespeople through its own education system. In the past, this gap was mitigated by recruiting from the Greater Region. This will be more difficult in future. One factor that may cause the situation to worsen is the fact that many immigrant blue-collar workers have no or few qualifications.

The lack of a qualified labour force seems to place more pressure on businesses than on employees. In this sense, recognition of "companies that have provided training" may be a useful incentive in Luxembourg.

In addition, given the chronic lack of qualified workers, employers may be fearful that they will provide training for their employees but not benefit from their investment if their staff then change employer on the basis that they are better qualified. Certifying blue-collar workers themselves therefore needs

to be examined carefully so as not to act in a way that is counterproductive to the training programme we want to set up.

3.	Establishment of a pooled funding system for training

A pooled funding system for training drives a collective effort on the part of businesses in a given economic sector in order to provide shared funding for training employees in the sector. Each business pays in an annual contribution based on objective indicators (number of employees, turnover, etc.), which is fed into a common fund used to pay for training for all employees in the sector.

These contributions are eligible for joint funding by the state as described in the Grand Duchy regulation of 22 January 1999 on continuing vocational education, as amended by the Grand Duchy regulation of 28/03/2012.

To date, the construction and temporary work sectors in Luxembourg have each created a system of this kind for their members. Countries in the Greater Region have also implemented similar schemes.

Establishing a scheme of this kind is a way of facilitating access to training for employees, through the creation of an equitable funding system. It should also be noted that setting up a system of this kind involves both social partners, namely employers and trade unions, which in turn helps to improve social dialogue.

In principle, the pooled funding system model could be copied to finance training in other trades. The national platform believes this would be difficult to achieve at the moment, however, because of the different training culture in trades other than carcass construction and public works.

4.	Quality assurance: creation of an “as built” quality label

Some of the platform participants would rather see a voluntary quality guarantee as opposed to an obligatory one imposed by legislation, since this provides a positive signal to the market but is probably simpler to implement. In this respect, the idea of creating a label for skilled trades businesses was discussed but not agreed as a way of achieving a solution. The participants feared an “inflation” and therefore depreciation of labels.

The platform participants are of the opinion that improving the “planning” energy passport and turning it into an “as built” energy passport would offer main contractors the possibility of stating that they had received the AAA house they had commissioned, which will be the norm for new homes from 2017 onwards.

A quality label awarded to the building “as built” could serve as a basis for producing a reference catalogue of “good” examples. If this catalogue is produced by a central, neutral organisation, it can be used on the one hand, as a means of advertising for skilled trade businesses and planners, and on the other, as a guide to main contractors when commissioning work.

Doubts over energy-efficient construction methods are due, amongst other things, to the fact that main contractors often question the competence of planners and tradespeople, as well as the feasibility of the method they are using. Monitoring and the reference catalogue could contribute to

providing security and transparency on these questions not only for main contractors but also planners and workers.

5.	Obligatory training

According to the platform, obligatory training is neither achievable nor desirable. The level of resistance from employers would be too high. Instead, the platform is focusing on a change of attitudes. There are numerous arguments in favour of a training campaign in the construction sector and the “sustainable construction information centre” and “LuxBuild2020 gateway” are believed to be the projects that will communicate these arguments most effectively.

Forcing employees to take part in training would not achieve the necessary shift in attitudes and the effects on behaviour in the construction sector in relation to training would only be short term.

3 Action plan

All of the actions described in this chapter must imperatively value actions already organized by the various stakeholders that have an impact on the evolution of skills in the construction sector (associations, government departments, training center, business representatives, institutional actors...). This will save time in the implementation of actions and budget optimization because achievements will be based on systems and structures already organized and recognized nationally.

3.1 Continuing education

The main player in continuing education is the Chambre des Métiers.

Lead player	Chambre des Métiers
Joint lead	Fédération des Artisans
Target group	all trades associated with energy efficiency and renewable energies: carcass construction, carpenter/sheet-metal worker/roofer, façade/ceiling specialist, external joinery, heating/bathroom, electrician
Delivery organisation	Training department of the Chambre des Métiers

Continuing education measures and potential partners

	Objectives and actions	Organisations to involve
1	Creation of a qualifications framework by trade	FdA, LCGB, OGBL, CRTI-B, IFSB
2	Development of continuing education courses on general knowledge of energy-efficient construction	energieagence, IFSB, CNFPC
3	Development of continuing education courses on specific knowledge of various trades	energieagence, IFSB, CNFPC
4	Development of teaching facilities for practical continuing education	energieagence, IFSB, CNFPC
5	Training the trainers	energieagence, IFSB, CNFPC
6	Development of in-company tutoring	energieagence, IFSB, CNFPC
7	Development of teaching materials for continuing education for manual workers	energieagence, IFSB, CRTI-B
8	Development of a website as a repository for the teaching tools created	CRTI-B, platform involvement
9	Update to the *brevet de maîtrise* programme	CNFPC, energieagence, IFSB

The continuing training should enhance the work already started or developed, it is important not to recreate existing training but bring either added value to existing training or promote the various actions already in place. In addition, infrastructures and existing educational tools should be either upgraded or modified to meet the needs of new formations, which have to be developed.

Discussions and workshops related to continuing education measures will have to integrate the different structures already active in construction sector trainings in order to identify existing trainings and educational infrastructures.

The energy-related updates of the “brevet de maîtrise” program will have to be integrated into regular work sessions. It is not necessary to develop another way of accreditation of this professional training.

In order to disseminate maximum efficient information, the websites of the various partners will relay information or redirect to the dedicated website.

In general, the implementation of these measures could only happen with the collaboration of the concerned federations. The federations should be in the center of decisions in order to motivate them to continue the process after the period of pillar II.

Implementation schedule for continuing education measures 2014-2020

Objectives and actions		Implementation schedule						
		2014	2015	2016	2017	2018	2019	2020
1	Creation of a qualifications framework by trade							
2	Development of continuing education courses on general knowledge of energy-efficient construction							
3	Development of continuing education courses on specific knowledge of various trades							
4	Development of teaching facilities for practical continuing education							
5	Training the trainers							
6	Development of in-company tutoring							
7	Development of teaching materials for continuing education for manual workers							
8	Development of a website as a repository for the teaching tools created							
9	Update to the *brevet de maîtrise* programme							

3.2 Support measures:

Harmonised communications through the LuxBuild2020 gateway

Lead player	To be defined: myenergy, CdM, IFSB and others
Target group	Business owners, young/future tradespeople, schools careers advice staff, blue-collar workers/employees
Organisation to be created	**LuxBuild2020 gateway**

Objectives and actions		Organisations to involve
1	Information and communications for business owners: training provision, framework conditions, state aid for training, training plans for SMEs	CdM, FdA, myenergy, IFSB; ADEM (careers advice centre), INFPC
2	Information and communications for young people: training grants, points of contact between young people and business, training provision, promoting skilled trades	
3	Information for ADEM placement advisers	
4	Communication to blue-collar workers	

The LuxBuild2020 gateway will have a key role in the dissemination of information for business owners, blue-collar workers and future young actors involved in the building sector. Indeed the gateway will provide companies with all necessary information regarding the training of their employees (existing training aid funding, training plans...). Job seekers can also obtain the information necessary for their career transition. Thus, the services already offered by the ADEM (careers advice center) will add up to actions of the gateway.

The gateway will guarantee a harmonized communication between different actors, allowing to obtaining a clear and structured message targeted to stakeholders.

This Luxbuild2020 gateway will be created by a consortium of representative structures of the construction industry and will have the support of relevant ministries (Ministry of Economy, Labor, National education and vocational training...). A consistent and structured message shall be transmitted to all parties. The gateway could be in place in several locations such as offices of the members of the consortium. The existence of numerous points of information will therefore allow an optimal information flow, reaching many people.

The financing of such a structure will depend on the chosen model: the number of employees and the structure location will impact the costs. It is important for the establishment of such a structure to use existing information dissemination relays already in place (at the different partners) in order to avoid unnecessary costs.

Objectives and actions		Implementation schedule						
		2014	2015	2016	2017	2018	2019	2020
1	Information and communications for business owners: training provision, framework conditions, state aid for training, training plans for SMEs							
2	Information and communications for young people: training grants, points of contact between young people and business, training provision, promoting skilled trades							
3	Information for ADEM placement advisers							
4	Communication to blue-collar workers							

Sustainable construction information centre

Lead player	**myenergy**
Target group	Blue-collar workers/employees, business owners, young/future tradespeople, schools careers advice staff
Organisation to be created	**Sustainable construction information centre**

Objectives and actions		Organisations to involve
1	Information for professionals: knowledge dissemination in the areas of sustainable construction, energy efficiency and renewable energies	CdM, OAI, FdA, energieagence, Neobuild, IFSB
2	Awareness-raising for professionals	
3	Network of sustainable construction professionals	
4	Promotion of sustainable construction	

The creation of the “sustainable building information center” will have to be realized by a well-established and recognized structure. This center will federate all institutional actors in the construction sector. This “sustainable building information center” will be the technical information center for sustainable construction for blue collars, business owners, future young actors involved in

the building sector and advice and school staff. It will provide technical information related to the construction of energy-efficient buildings.

This structure can be quickly operational because it will be based on the existing structure Myenergy.

Objectives and actions		Implementation schedule						
		2014	2015	2016	2017	2018	2019	2020
1	Information for professionals: knowledge dissemination in the areas of sustainable construction, energy efficiency and renewable energies							
2	Awareness-raising for professionals							
3	Network of sustainable construction professionals							
4	Promotion of sustainable construction							

3.3 Structural reforms and framework conditions

Lead player	To be defined: Ministry of Education, myenergy, CdM, others
Target group	Business or blue-collar workers

Objectives and actions		Organisations to involve
1	Promote state aid for training	INFPC, LuxBuild2020 gateway
2	Recognition of courses related to blue-collar workers or the business providing training	To be defined
3	Establishment of a pooled funding system for training	CdM, IFSB

The actions described above will only use and enhance the existing approaches. Indeed, INFPC (The National Institute for Continuing Training) has already launched operations on communication related to training funds for all economic sectors but without a specific communication for the construction sector. It will therefore be important to benefit from their experience to adapt communication to the construction sector.

One of the key measures outlined in the above table is to structure the access to training for different construction federations. The pillar I of the project LUXBUILD have already helped to convince the federation of craftsmen (they represent all sectorial federations of the build sector). They have understood the importance of structuring their professional associations in order to have better access to training and also to boost the access of employees in trainings.

It should be noted that the federation of Installers has just been convinced to start this process. It could start in 2014 thanks to pillar II of LuxBuild. Indeed, if the project would be accepted, working groups could quickly produce results and concrete actions.

All federations interested in the establishment of a pooled funding system for training could use the experience acquired by construction companies who have implemented a similar process 12 years ago. The implementing rules shall respect the specificities of each sector of the construction industry.

Objectives and actions		Implementation schedule						
		2014	2015	2016	2017	2018	2019	2020
1	Promote state aid for training							
2	Recognition of courses related to blue-collar workers or the business providing training							
3	Establishment of a pooled funding system for training							

The other measures were not adopted by the national platform as part of this route map. As a result they are not included in the action plan.

As a conclusion, all stakeholders and existing measures have to be taken in consideration to develop actions described above. All the actors have to work together to maximise the efficiency of these future measures. It is important to create a sustainable representative task force in order to reach 2017 objectives.

4 Conclusions

Ensuring that workers in the construction sector in Luxembourg are properly qualified is a fundamental element in implementing the national climate and energy policy. The sector, however, has been somewhat reticent in relation to training its employees and the profile of salaried employment varies widely, in terms of both training and skills.

Given that the deadline for tackling the challenges set by legislation in Luxembourg has been brought forward to 2017, an initiative on training is essential.

The LuxBuild2020 platform is convinced that the success of a training initiative for the country's skilled workers is based on two pillars:

- an adequate supply of high-quality training courses for skilled tradesmen with different levels of skills
- a significant shift in attitudes in the skilled trades in order to increase a sense of responsibility and encourage them to take the initiative for training staff based on the business's specific needs.

The emphasis must therefore be placed on continuing education, which must offer solutions that both guarantee good-quality training and make it possible to train a large number of workers in a minimum amount of time. These courses could be provided through training organisations, on-site or internally, within businesses.
Yet it is proving increasingly difficult to find qualified trainers. Training teachers and trainers is therefore a necessity and establishing "Train the Trainer" courses should, in the long term, help to develop a centre of training resources at a national level.
In this context, tutoring is being seen as a strategic tool for knowledge capitalisation and passing on know-how. Given that existing structures will scarcely be able to tackle the enormous challenge of continuing education by themselves, developing and optimising tutoring seems to be a positive solution for Luxembourg. This will also involve overturning existing learning methods and as a result, developing new teaching tools, which should be primarily visual and practical.

In terms of support, the national platform has identified two measures for implementing a training initiative with a view to optimising workers' qualifications.

Communication designed to drive a shift in attitudes is an essential measure in terms of successfully motivating the sector and in particular small firms, to prepare for the challenges ahead. Against this background, the platform proposes the creation of a "sustainable construction information centre" to ensure harmonised and structured communications aimed at businesses and current and future tradespeople.

Once a shift in attitudes has been achieved, it will be important to put in place a structure that will help to make access to training as easy as possible. This structure – the LuxBuild2020 gateway – must bring together all the useful information and practical advice businesses will need.

As far as the necessary structural reforms are concerned, the platform is of the opinion that it is important to include funding for continuing education and recognition of training in the action plan.

5 Testimonials

See separate documents: Endorsement declaration from INFPC, FdA, ADEM, relevant ministries, etc.

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