



# **Country Report and Guidelines on social dialogue**

## **Belgium**

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### 1. The green building sector: main characterisation

#### ▣ Introduction

It is in the area of energy consumption that lies the greatest potential for reducing greenhouse gas emissions in buildings. Based on this observation the European Commission has included the construction sector in its list of priorities for achieving the targets laid down in the “Europe 2020 strategy” (1). That is why on 19 May 2010 it adopted a directive on energy performance of buildings. That directive implies among others things that all new buildings will have to be near zero-energy buildings from 2021 on (3).

The challenges and hence the opportunities for construction companies are numerous. The size of these challenges in connection with cutting greenhouse gas emissions from buildings is a consequence of the poor energy performance of Belgian buildings. The McKinsey report (Pathways to world class energy efficiency in Belgium) concludes that Belgian energy consumption per square meter is well above the EU average (72% gap with Europe as a whole and 51% with our neighbouring countries). Due to the climate in Belgium our heating needs are nevertheless slightly lower than those of our neighbours. The difference in consumption is therefore related to the nature of the Belgian building stock (older, less compact, less well insulated). Accordingly the greatest potential for energy savings is in existing buildings (2).

#### ▣ Features of the construction sector

##### ◆ General

The construction sector embraces various operations: house building (structural and finishing), industrial buildings and civil engineering (soil, roads and water works), as well as services (including project design and management) and the manufacture of materials and building components. The construction sector in Belgium generates 46.6 billion euros in turnover (22% in the Walloon Region, 11% in the Brussels Region and 66% in the Flemish Region). This sector creates wealth in excess of 16 billion euros, i.e. a share of approximately 5% of GDP (6).

The size of the businesses is in proportion to the scale of the projects on which they are working. We have seen nevertheless that two third of the businesses have no employees. 21% of them have 1 to 4 employees. Only 1% of companies have more than 50 employees. Small businesses operate mainly in the residential market. Medium-sized business dominate the non-residential market, and large companies are capable of taking on large infrastructure projects as well (7).

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The construction sector operates mainly on a local basis; this manifests itself in more stable employment than other industrial sectors. The sector is less sensitive to changes in competitiveness. Large companies do operate internationally because an export market exists for large-scale construction and infrastructure projects.

Competitive positioning plays an important part especially in the manufacture of building materials, both within Europe and internationally. Advanced products are often imported at present. Some materials for which mass production is becoming significant, e.g. photovoltaic panels, are relocating to countries such as China where manufacturing costs are a great deal lower (7).

Competition between manufacturers of building materials is intense and based primarily on cost and price considerations. There is however sluggish evolution noticeable towards a more value-driven market. This means that manufacturers compete on the basis of the value of their products and that the market is prepared to pay more for products of better quality. This therefore brings about greater opportunities for niche players to specialise in offering more complex sustainable products (8).

### ◆ Challenges

#### □ Innovation

Innovation in the field of sustainable building can exist at two levels:

1. products and processes and
2. the manufacturing process. The latter entails an approach that focuses more on using, upgrading and refurbishing buildings and infrastructure.

There is evidence of cross-sectoral innovation to an increasing extent, in other words: technologies from renewable energy for instance are being incorporated in building components. Thus solar cells for instance are built into roofing.

Innovation occurs mostly in knowledge centres. On the other hand, the application of this innovation in construction companies themselves and its permeation to the demand side is proceeding rather sluggishly. This is partly attributable to the large number of small businesses that do not always possess the trained employees or the resources to implement new technologies.

There is evidence of a rising level of automation and increasing use of prefabricated materials, because this offers greater benefits of scale and allows greater control of working conditions (e.g. the weather). This evolution is certainly of importance in green

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building because the higher environmental performance depends to a large extent on assembly accuracy. An additional benefit of using prefabricated materials is that technological innovations are easier to disseminate, even with small businesses (8).

### ☐ Sustainable building

The concept of sustainable building entails consideration for the environment (e.g. energy efficiency), health (e.g. air quality) and social aspects (e.g. independence for the elderly).

Green building is a sub-aspect of sustainable building in which the focus is on the environmental dimension. The aim is to reduce the need for natural raw materials such as energy, water, land, non-renewables, etc. and the overall environmental impact of buildings and infrastructure. The life cycle approach is key to this. Green building embraces the entire chain of the construction process and the life cycle of the building, from design to demolition of the buildings, from developing and manufacturing building materials to recycling them.

Because the implementation of green building is possible on any scale and is appropriate in every activity, all companies operating in the construction sector are potentially engaged in green building, along with conventional business activities.

Various studies have attempted to identify the size of this share in practice. A survey with Building Confederation members in 2010 revealed that 70% of businesses are active in sustainable building (4).

The energy efficiency of residential buildings in Belgium is currently among the lowest in Europe. The total energy consumption of a home is accounted for mainly by consumption for heating, the ventilation or air conditioning system, hot water consumption and electricity.

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### 2. National political framework for green building

#### ■ Introduction

As a result of different state reforms (six in total since 1970), Belgium is a federal state with three communities, three regions and four language areas.

- ◇ Three Regions (Flemish Region, Brussels Capital Region and Walloon Region)
- ◇ Three Communities (based on the language spoken: Dutch, French and German)
- ◇ Four language areas:
  - Dutch language area
  - French language area
  - German language area (with specific linguistic facilities for French-speakers)
  - Bilingual Brussels-Capital area

Just like the federal institutions, every community and every region has its own political institutions. Every community and every region has legislative powers for the matters prescribed by the Belgian Constitution. The matters for which a community and/or a region has legislative powers have been modified as a result of the different state reforms.

Concerning Green Building, these matters include (among other things):

1. Training and education: from nursery school to university, including scholarships, via the introduction of compulsory education (communities)
2. Policy regarding economy, employment and energy: includes public support for business, employment policy, distribution of electricity and natural gas, exploitation of new energy sources and promotion of rational energy use (regions)

The legislative powers regarding education, training, energy-efficiency and renewable energy sources reside with the local authorities. The following text is meant to create a national political framework (for Belgium) by identifying the initiatives undertaken by the different regional authorities (communities and regions).

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### ▣ National regulatory and legislative framework

In the environmental field the 20-20-20 climate targets have been formulated by the EU. In concrete terms it is being postulated that by 2020:

- ▣ emissions of greenhouse gases will be cut by 20%,
- ▣ a 20% share of energy end-use will be from renewable energy sources and
- ▣ there will be a 20% saving in energy demand.

The construction sector can make an immense contribution to help society meet these targets. That means, among other things, that there will have to be an increase in the number of qualified workers. The transposition of these developments into appropriate craftsmanship and the qualifications they entail, training in short, perhaps constitutes the greatest challenge.

On 23 January 2008, the European Commission published its climate package meant to put into practice the 20-20-20 goals. For Belgium, this means that by the year 2020 (11) (12):

- the part of renewable energy in the gross final energy consumption will have to be reduced by 13%;
- the primary energy consumption will have to be reduced by 18%;
- the greenhouse gas emissions will have to be reduced by 15% in comparison with 2005 in the industries that are not covered by the European Emissions Trading System (non EET industries).

### ◆ Renewable energy

The European Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources imposes a binding goal to each member state concerning the part of renewables in the final energy consumption that will have to be achieved by 2020. Belgium has to achieve a goal of 13% of renewables by 2020. That is a very ambitious goal, knowing that in 2005, only 2,2% of all energy had a renewable origin.

The Belgian “National renewable energy action plan” was submitted to the European Commission on 1 December 2010. The federal government and the three regions compiled the plan. The plan describes how Belgium can achieve the target on renewable energy by 2020.

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This target is binding. The measures, target percentages per sector (electricity, heat and transport) and the interim targets are only indications. The existing measures are assessed on a regular basis and – where necessary – additional measures are introduced to eliminate any problem areas (arising).

The action plan describes the existing policy measures and regulations in respect of renewable energy and new measures in prospect: a minimum share of renewable energy in buildings, quality accreditation for installers and additional support for green heat. These measures are undergoing further elaboration.

In order to optimise regional policy, the target for Belgium is being transposed into a target for each region. Accordingly, each region can employ its optimum mix of renewable energy sources and tools (9).

The Walloon Government decided to set the European goal of getting 20% of all energy from renewables as a goal for the Walloon Region too (13). Regarding the greenhouse gas emissions reduction, it aims at a reduction by 30% compared to 1990 (14).

Flanders imposes itself to get 13% of all energy from renewables by 2020, and to reduce the energy consumption by at least 9% by 2016 (based on the average final energy consumption 2001-2005). Flanders also wants to reduce the greenhouse gas emissions. Two central elements to these goals are the Flemish climate policy plan 2013-2020 and the Flemish adaptation plan (15). Moreover, a lot of attention is spent on the good implantation of the wind turbines. The wind energy industry has set itself the goal to generate 1.500 MW in Flanders and 2.800 MW in the North Sea using wind turbines by the year 2020 (16).

The directive also contains provisions that oblige the member states to fix minimum levels for the use of renewable energy in new buildings. In Flanders, this obligation applies to the offices and schools that belong to public authorities since 1 January 2013. For all other new and thoroughly renovated buildings, the obligation applies since 2014. The European directive 2010/31/EC on the energy performance of buildings obliges the European member states to ensure that, by the year 2021, all new buildings are near zero-energy buildings (nZEB). For buildings that belong to the public authorities, this obligation will apply from 2019 on.

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### ◆ Energy efficiency

Consistent with the European directives, Belgium submitted its third “National renewable energy action plan” on 30 April 2014 (20). Apart from the promotion of renewable energy, efforts have to be made in the area of energy efficiency (reducing the consumption of energy and thus reducing the greenhouse gas emissions) in Belgium. The construction industry will have an important role to play in this. The action plan shows the federal and regional initiatives and policies, among other things.

### ▣ Relevant institutional initiatives in support of sustainable building

The passage below gives a short overview (relevant for the construction sector).

#### ▣ On the federal level (20):

- ◆ “Energievreters”: this website (Dutch: [www.energievreters.be/](http://www.energievreters.be/) French: [www.energivores.be](http://www.energivores.be/)) is a complex, but practical internet tool to calculate CO2 emissions. There is a specific module for the construction sector: windows, roof insulation, wall insulation, lighting.
- ◆ MPV-database of building materials: The Federal Public Service Health, Food Chain Safety and Environment puts a database at the manufacturer's disposal, allowing them to indicate the full life cycle of their building product. Thanks to this database, it will be possible to take into account the so-called embedded energy, i.e. the energy it takes to produce, install, maintain and remove a building product. The better buildings can be insulated, the more important this embedded energy will become.
- ◆ Tax credit Roof insulation
- ◆ Expenses for the renovation of inexpensive rental homes

#### ▣ Walloon Region (20):

- ◆ In accordance with the exigencies contained in Directive 2010/31/EU on the Energy Performance of Buildings, Wallonia agrees that, from 2020 on, every newly built building will be "Net Zero Energy".
- ◆ The Energy Advice Procedure (EAP) that was launched in 2006 is meant to audit existing buildings in answer to a voluntary action of the owner or tenant. After a visit by an authorised auditor, the applicant receives an advice as well as a certificate.

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- ◇ Certifier and EPB certificate: the certification of existing residential buildings and the authorisation of the different parties concerned (certifiers and training centres) are organised in a decree that was adopted by the Walloon government on 3 December 2009 and that was published in the law gazette on 22 December 2009. The candidates have to meet certain conditions (degree, experience). Depending on their profile, they also have to participate in certain trainings organised by authorised centres, and, in certain cases, they have to pass an oral and a written test. The minister authorises the candidates who participated in the training and who passed the examinations, if required.
- ◇ Green certificates: these certificates (that act as a kind of ‘allowance’) are distributed for ‘green’ power. The certificates are authorised by Europe and can be traded on national and international markets. In Belgium, green certificates have been used as the publicly supported tool for the production of renewable energy since 2002.
- ◇ Marshallplan 4.0 (21)
  - ▣ 'Housing' and 'Energy' allowances and loans
    - ◇ The ECOPACK: instalment loan with an interest rate of 0%, mainly for the financing of works that qualify for the 'Energy' allowance
    - ◇ The RENOPACK: instalment loan with an interest rate of 0%, mainly for the financing of works that qualify for the 'Renovation' allowance
  - ▣ Energy audits and study (AMURE)
  - ▣ SOLTHERM focuses on the expansion of the solar water heater market in Wallonia by means of the attribution of an allowance for the installation of a solar water heater and by means of training for the installers.
- ▣ Flanders (19)
  - ◇ Regulation on energy performance certification (EPC)
  - ◇ Energy performance exigencies in the Flemish housing code
  - ◇ Allowances and tax credits for energy saving investments
    - ▣ Property tax cut for new buildings with a lowered E rating (the E rating is a measure of the energy performance of a building and its fixed systems

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in standard conditions. The lower the E rating, the more energy efficient the building is).

- ▣ Roof insulation allowance
  - ▣ Flemish renovation allowance: by means of the renovation allowance, the Flemish government aims to support owners who want to renovate their own house of at least 25 years old or who want to convert an existing building into a home. The allowance is calculated in function of the category of the works and adds up to 20% or 30% of the invoice amount taken into account.
  - ▣ The Flemish improvement allowance: apart for the Flemish renovation allowance, there also exists an improvement allowance. This allowance is meant for people with a modest income.
  - ▣ On 29 November 2013, the Flemish government determined the E rating and the set of requirements buildings will have to comply with by the year 2021 in order to meet the nZEB level.
- ◇ Help of energy consultants
  - ◇ Green power certificates
    - ▣ Brussels (20)
  - ◇ EPB: The range of measures prescribed in the EPB edict can be summarized in three main categories:
    - ▣ The component "Technical EPB installations": the technical facilities of a building can be an important source of energy savings. In order to guarantee a minimum level of energy efficiency, heating and air conditioning systems have to meet certain requirements and are subject to different controls.
    - ▣ The component "EPB works": for a construction or renovation project for which an urban planning permit is required, a property has to meet certain EPB exigencies aimed at a high energy efficiency and a healthy interior climate.
    - ▣ The component "EPB certificate": this allows prospective tenants and prospective owners to compare properties based on their energy efficiency. Every residence and every large office space that is put up for

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sale or for rent has to have an EPB certificate containing this information.

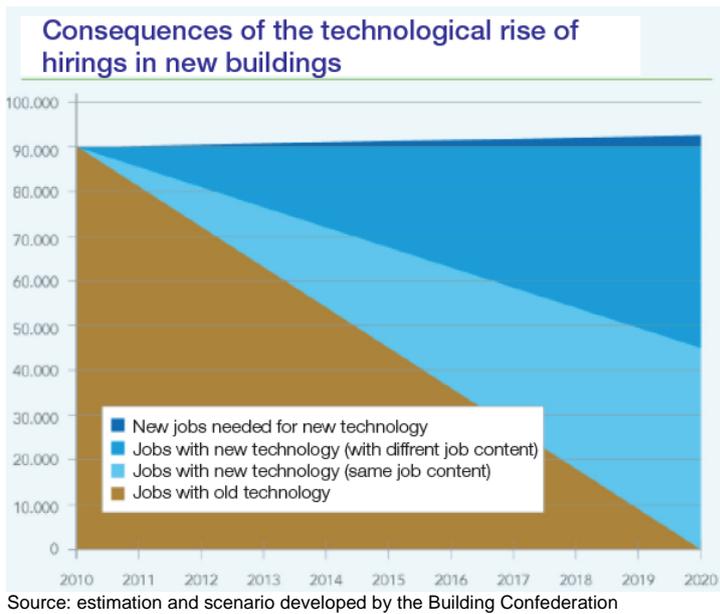
- ◇ Renovation allowance: the allowance for a renovation of the living environment regards works that guarantee stability, safety and health or that modernise the house and increase its comfort level. This allowance is meant to help owners improve the habitability, basic comfort and safety of their house.
- ◇ Energy allowances: in order to rationalise the use of energy, allowances have been created following these three priorities:
  - ▣ Audit: detection of the heat loss points in a building
  - ▣ Insulation: guaranteeing the insulation of the building envelope
  - ▣ Heating: installation of a heating system and an efficient system for the production of warm water that is adjusted to the needs

### 3. Major trends in the green building economy

- ▣ Economic trends in the construction sector

In the context of the 2020 strategy requiring by the EU to be implemented, we can conclude that all jobs that are involved in new build will be green jobs. All new buildings will in actual fact require to be nearly energy neutral. Changes in the construction process which will be necessary to produce these nearly energy-neutral homes will also have knock-on effects on work content. In passive buildings for instance there is very little, if any work for a heating installer, whereas in a 'traditional' building installing heating is a significant business. However installing ventilation is optional in a traditional house but all the more important in a passive dwelling. The heating-ventilation job content in new build will therefore, as part of the greening of the construction sector, shift from heating to ventilation (1). In addition to ventilation with heat recovery (as used in a passive house) there is also the possibility of using demand-driven ventilation as an alternative. These demand-driven systems are more likely to be installed by electricians.

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A survey conducted by IDEA Consult on behalf of the Building Confederation reveals that the attitude of contractors to sustainable building varies from passive (it must be done) to highly active (wanting to follow trends). The most active attitude can be found among contractors who carry out installations. In addition to this it is also evident that construction companies have a demand for additional training, both trade-related and non-trade-related courses. It is also evident that many contractors are still anxious about the price of sustainable building (4).

The McKinsey report (Pathways to world class energy efficiency in Belgium) concludes that Belgian energy consumption per square meter is well above the EU average. The difference in consumption is therefore related to the nature of the Belgian building stock (older, less compact, less well insulated).

The data in **Errore. L'origine riferimento non è stata trovata.** suggests that only 23% of buildings in Belgium were constructed post 1981.

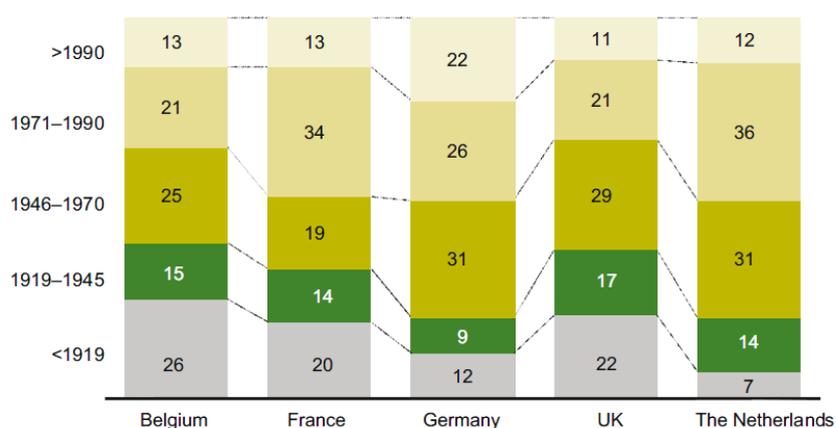
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**Table 1 - Age of building stock in Belgium (2011) (17)**

Number of buildings constructed	Single family dwellings			Multi-family dwellings	Others	Total	%
	TH	SDH	DH				
before 1900	282,766	163,563	135,160	11,335	127,251	720,075	16%
from 1900 to 1918	183,445	68,869	42,050	7,986	48,099	350,449	8%
from 1919 to 1945	296,869	141,396	88,255	15,310	90,228	632,058	14%
from 1946 to 1961	170,668	174,034	145,433	24,795	110,326	625,256	14%
from 1962 to 1970	71,454	101,265	161,958	25,876	96,652	457,205	10%
from 1971 to 1981	77,456	116,383	272,954	23,899	115,110	605,802	14%
post 1981	81,551	156,598	516,652	51,586	196,934	1,003,321	23%
<b>Total</b>	<b>1,164,209</b>	<b>922,108</b>	<b>1,362,462</b>	<b>160,787</b>	<b>784,600</b>	<b>4,394,166</b>	<b>100%</b>

The table that follows allows us to make a comparison with some European countries (data from the year 2005). It reveals that only the building stock in the UK is comparable to the situation in Belgium.

**Figure 1 – Age of building stock by period in some neighbouring countries (2005) (18)**



Accordingly the greatest potential for energy savings is in existing buildings (1).

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### ▣ Employment trends in the construction sector

#### ◆ Personnel turnover

##### ▣ Introduction

This research by Constructiv is based on a comparison of the active construction sector workforce as at 30 June 2013 with the construction sector workers who were active on 30 June 2014. As a result of this we can draw a distinction between various categories:

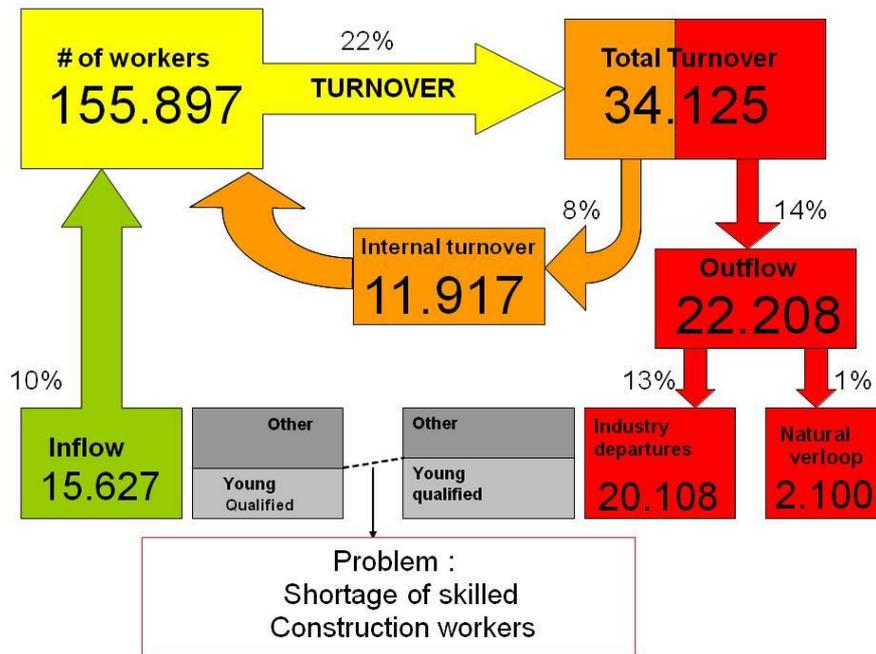
- same construction employer: workers who have not changed employers (SEC)
- different construction employer: workers who have changed employers, but who are still active in the construction sector (DEC)
- outflow: workers who are no longer present as workers in the construction sector. There can be various reasons for this. Accordingly, a worker might be active in a different sector on 30 June 2014 or not able to be found on account of death, (early) retirement, unemployment, etc. (outflow)
- intake: workers who were not active in the construction sector on 30 June 2013, but who are present as workers on 30 June 2014, these people in other words have started work in the construction sector (intake).

The source of this research is the database which Constructiv has at its disposal. This database is fed with information from the Crossroads Bank for Social Security. It contains all the information about employment of workers in the construction sector (Joint Committee No. 124).

The turnover in the workers' population from June 2013 over a one-year period is shown in the chart below (note: the difference in number of employees compared with the table in the following passage (Table 2 Evolution in workers by age) is due to a different measuring point: in this study employment was measured on 30 June 2013, in the following table regarding employment (Table 2 Evolution in workers by age) the measurement was taken in December 2013).

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Figure 2. - schematic outline of turnover in the construction sector (figures for 2013-2014 – Source Constructiv)



Of the estimated 156,000 workers employed in 2013, around 34,000 have changed employer (22%). Of these 34,000, around 12,000 have changed employer within the sector. Around 22,000 workers (14%) have left the sector. This includes some 2,000 people under natural wastage: they are on (early) retirement, long-term unfit for work, deceased, etc. The remaining 20,000 workers have transferred to another sector, are unemployed or have changed status (clerical or self-employed).

The origin of intake has been determined based on previous research. It was noted that out of the total intake, 35% originated from a training system (or through temporary work).

- 14% came from a sandwich course system (JLW, ABO, IBO).
- 12% came from basic training for jobseekers.
- 12% came through a temporary contract in the sector.
- 20% came from construction education.
- 42% came from a combination of the above systems (e.g. a temporary contract after construction education).

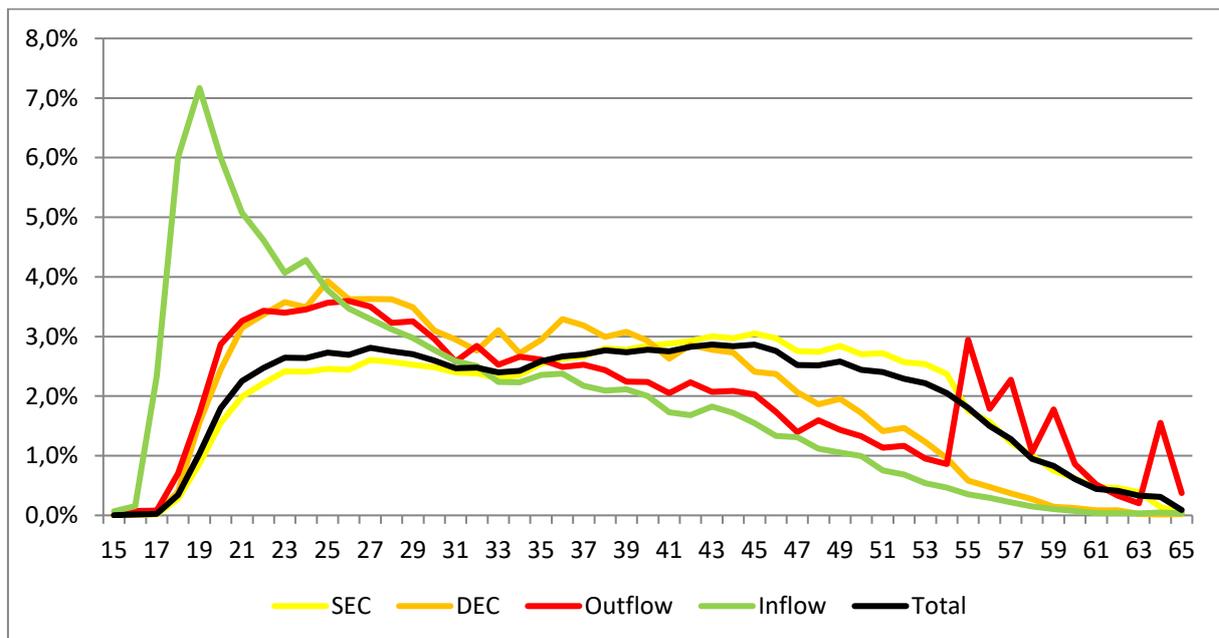
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24% are re-entrants, i.e. workers who have come back to work in the construction sector again. The remaining intake (41%) consists of newcomers who cannot be traced. In concrete terms this undefined intake consists of individuals who cannot be tracked down in construction training courses. Accordingly, these are possibly young people who have attended a training course outside construction education (catering, engineering, etc.). They could also be older employees who have come in from another sector. What is indeed clear is that these people have no experience within the construction sector and/or did not have the benefit of basic training that prepares for work in the construction sector. This group therefore lacks any construction-related qualifications.

☐ Turnover by age

Figure 3: age distribution of turnover in the construction sector, relative numbers (figures for 2015) shows the relative age distribution for the various subpopulations and for the total population. The age distribution for the “same construction employer” approximates the age distribution for the total population. The “outflow” and “different construction employer” subpopulations have a relatively young population. For outflow there are naturally many older construction workers, who take (early) retirement or die. Intake naturally has a very high proportion of young people, but this is partially negated by young people who leave.

**Figure 3: age distribution of turnover in the construction sector, relative numbers (figures for 2013-2014 – source Constructiv)**



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◆ Personnel evolution

The table below shows the number of workers employed in the construction sector (Joint Committee no. 124) by age category.

**Table 2: Evolution in workers by age (Source: Constructiv)**

Age	2009	2010	2011	2012	2013	2014	2015
15-19	475	2,632	2,673	1,990	1,503	1,212	1,098
20-24	17,612	19,585	19,888	18,891	16,399	14,911	13,520
25-29	21,923	22,464	22,811	22,426	21,037	20,404	19,700
30-34	20,682	20,510	20,827	21,234	20,402	20,041	19,462
35-39	20,685	20,424	20,740	18,993	17,976	17,916	17,971
40-44	22,180	21,857	22,196	20,845	19,546	18,605	17,813
45-49	21,836	21,284	21,613	21,292	20,153	19,596	18,906
50-54	19,127	18,454	18,739	18,759	18,279	18,333	18,333
55-59	12,533	10,937	11,106	11,788	11,999	12,215	12,705
60-65	4,789	3,821	3,880	4,280	4,268	4,274	4,514
Total	161,843	161,968	164,743	160,498	151,562	147,507	146,037

It is clear that the total number of workers decreased significantly in the last few years.

▣ Skill needs and training

◆ Institutions responsible

▣ Formal education

◆ Different players

*The role of government*

The authority for education rests with the regional governments (Flemish Community, French Community and German-speaking Community). The department for education and training will draft a decree. At this preparatory stage the competent minister is required to enlist the advice of the various third parties (e.g. in respect of funding, validity of legislation, etc.). One of these third parties is the Education Council (called “Vlor” in the Flemish Community, “Conseil pour l’enseignement” in the French Community). This council works independently of the department for education and the competent minister. Once this Education Council has had the opportunity to formulate a recommendation the decree can go before parliament. After that authority rests with the executive (the Department for Education) to implement policy. During this implementation the policy will be assessed by schools and inspectorates.

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### *Networks*

Freedom of education is a key component of the Belgian constitution. Education is organised by various networks. This guarantees the schools' right to work out their own teaching approach. There are three major networks:

- Community education
- Official subsidised education (organised by municipal authorities or provinces)
- Free subsidised education

◇ Development, accreditation and regulation of qualifications and skills

The first step consists of professional competence profiles being drawn up. These profiles are to meet the needs of the construction industry. They are validated by management and the workers and form the basis for learning outcomes in the various paths that can be followed by young people. Professional competence profiles are developed using an analytical procedure. The source material is compiled first: manuals, training courses, literature, as well as interviews with businesses and experts. A draft of the professional competence profile will be prepared next. This draft will be presented to management and workers as well as experts in the field. This enables adjustments and changes to be made. Finally the document is presented to all relevant management and worker representatives. Minor amendments can still take place after this last phase. This process ensures that management and workers endorse the content of the professional competence profile.

The second step is to set up training profiles. These profiles embrace the necessary knowledge and skills that a construction sector worker will need to possess at the start of his career. The aim of a training profile is to develop a tool, validated by a specific sector, that will enable VET (vocational education and training) to be consistent with the reality of the labour market.

The third step is to set up learning programmes. This is usually carried out by the various networks. The curriculum consists of:

- General trades
- Practical trades
- Work placements

Colleges (or the networks) develop the learning programmes. The government lays down the development targets and final attainment levels. However, given that the

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professional competence profiles have been drawn up and validated by management and workers and that these profiles constitute the source and reference material that determines these final attainment levels, management and workers will have considerable influence on the learning programme.

The way in which these objectives are achieved is the responsibility of the college or the training centre.

### ◇ The structure of VET and qualifications

Competence is related to performance of workplace activities in a circumscribed vocational activity and is based on an integration of knowledge, skills and attitudes. It is assumed that a student will rely on knowledge (e.g. properties of insulation materials), skills (the ability to install insulation material) and (work) attitudes (a degree of precision, efficiency, collaboration, etc.). Final attainment levels are described in terms of competencies: a student is able to complete a certain task, a student knows certain facts and possesses certain attitudes.

A qualification is an exhaustive set of competencies for which someone can obtain an official certificate. A qualification defines the competencies that are relevant for a specific job, community post or access to an education system. Different routes exist to obtaining qualifications. These routes are set out in the passage that follows.

All education systems focus on three areas:

- General training: how to function in society and how to develop as an individual;
- Preparatory training: preparation for further education;
- Preparing for the labour market: acquiring competencies that can be used to find a position in labour market.

All colleges have to pay attention to these three areas. However, the emphasis placed on any of these areas can differ in the various education systems. Special Needs Education focuses almost exclusively on training aimed at work. On the other hand ASO [General Secondary Education] focuses almost entirely on preparation for further education.

The 6 years of secondary education (between the ages of 12 and 18) is divided into three 2-year levels. Level one (years 1 and 2) is the same in all education. In level two the student will choose a certain area. In level three the student will opt for a specific field.

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### **Special needs secondary education**

This is an education system aimed at students with a physical disability, learning difficulties or developmental disorders (such as ADHD, autism, etc.). Students can obtain a qualification by attending a training course in this system.

### **Vocational secondary education**

The traditional route to obtaining a qualification in the construction sector is full-time education: vocational secondary education. This education system prepares young people for employment as qualified employees and contributes towards vocational and social development.

### **Technical Secondary Education**

The aim of this education is twofold: preparing students for the labour market, but also preparing them for further education. The syllabus pays more attention to design than just carrying out tasks.

### **Adult Education**

Adults can attend training courses in centres for adult education (CVO in Dutch).

### **Sandwich courses/apprenticeships**

The aforementioned education systems consist of full-time education in a college (although set periods are spent in a company as well). Young people who have reached level three can also choose a sandwich course. In this system the youngsters spend the majority of their time in a company (60-80%), the rest of the time is spent in a training centre.

#### ◇ Ratio between the various routes

If we look at the number of apprentices in the various training systems, we can see that the ratio between the various routes is as follows:

- Special needs education: 20%
- Vocational and Technical education: 40%
- Industrial Apprenticeships: 20%
- Apprenticeships: 20%

(source: Syntra, IFAPME, Constructiv statistics)

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Accordingly, vocational and technical education constitute the greatest potential intake channel, the other routes can account for proportionally equal intakes.

◆ Advanced vocational training for workers

▣ Constructiv

The Fund for Vocational Training in The Construction Industry (fvb-ffc Constructiv) was set up in 1965 as a Fund for Social Security and later on was integrated in Constructiv, tasked to promote and support training of present and future workers in construction and to safeguard the quality and results of their training.

The importance the sector attaches to training was already made clear from the start by the unique financial arrangements for this fund. Fvb-ffc Constructiv was and is in actual fact financed by a percentage that all construction companies pay on payroll payments. In this way the cost of training is fully consolidated.

The history of fvb-ffc Constructiv is characterised by a number of fundamental changes.

- Initially fvb-ffc Constructiv operated in the structural construction sector only. The finishing sector was added to this in 1987.

- In the early years of fvb-ffc Constructiv the main emphasis was directed at campaigns involving young people. Since the nineties its operation has been based on three pillars: collaboration with education, retraining of jobseekers and in-service training for construction sector workers.

- Furthermore, fvb-ffc Constructiv is also working on upgrading the image of construction vocations and on raising awareness of safety aspects in the construction industry. Massive efforts were put into both areas, not only for, but also by the companies and workers in the construction sector.

As of the 1<sup>st</sup> of October 2016, fvb-ffc Constructiv became part of a larger organisations: Constructiv.

The Joint Committee for Construction is the ultimate client for Constructiv. Thus, among others, it appoints members of the Constructiv Board of Management, in which employer and employee organisations are represented.

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The Constructiv structure of permanent employees moreover can count on input from both regional and sectoral advisory groups that include representatives from the sector and training partners.

The three pillars are:

- collaboration with construction vocational education;
- support for jobseekers' training;
- stimulating in-service training for construction sector workers.

Constructiv is the point of contact in this regard for all the target audience concerned. Constructiv is and remains a federal sectoral Fund. It is therefore the Board of Governors that bears ultimate responsibility.

Given that “education” and “training jobseekers” are regionalised matters, sectoral terms of reference are utilised in which implementation is carried out by the regional guidance groups:

- the sectoral terms of reference lay down uniform sectoral objectives such as:
- increasing intake into construction training courses;
- increasing training quality;
- increasing flow to construction employment;
- reducing the number of dropouts.

Taking account of these sectoral terms of reference, subsequent elaboration will be assigned to the three regional guidance groups. Every effort will be made here to achieve optimum coordination with the regional governments on these matters. There are three full-fledged guidance groups: Flanders, Brussels and Wallonia. In general terms they will consult mutually where necessary. Directing and managing employee training courses remains a federal matter. Constructiv has recommendations passed on to it from two channels: the regions and the sections.

The region is a joint action and consultation body of Constructiv at provincial level. In carrying out its assignments it can also put sub-provincial sensitivities on the agenda. It is made up of local management and workers from the construction sector and is supported by the competent regional manager.

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The duties of the regions comprise:

- collaboration with daytime education with a full syllabus;
- collaboration in the context of organising and dealing with young people's apprenticeships.
- collaboration in the context of training schedule implementation;
- collaboration to develop sectoral initiatives for the benefit of the "construction risk groups";
- compiling all relevant information on the provincial sectoral labour market and temporary construction labour, as well as regularly drawing up a demand list for construction competencies that could not be met from the labour market. The geographical competence of the region extends the territory of the province.

The region is run by day-to-day management, that is made up jointly of regional representatives of the Constructiv member organisations, including employer and employee organisations. The day-to-day management is assisted in an advisory capacity by one expert in safety and well-being issues and the regional manager of Constructiv or a training advisor appointed by him. The regional manager's role comprises the overall coordination of the region's activities. The regional manager or a training advisor appointed by him acts as secretary of the region.

### ☐ Vormelek

Vormelek is the training centre for all employers and employees in the 149.01 joint committee. This is the joint committee for electricians. Accordingly, this sector also takes on employees who operate in renewable energy and energy efficiency. Solar panel installers are but one example that comes to mind. The organisation was set up in 1991 in response to on-going training needs. In other words training is crucial in order to remain successful. This understanding led management and workers to set up an occupational training centre.

Like Constructiv, Vormelek is funded through a collective labour agreement. In the collective labour agreement employers and unions have laid down that 0.75% of each worker's gross salary will be paid in to support training for workers and to activate risk groups.

In order to keep knowledge levels in our sector up to scratch, Vormelek is working on various fronts simultaneously. First and foremost, there are the efforts in terms of training and competency management. Furthermore, Vormelek is also engaged in

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sectoral research and analysis. In addition, Vormelek is conducting all manner of campaigns to promote the intake of employees.

### ☐ OCH

The Training Centre for Wood [OCH in Dutch] is the training centre for the Soft Furnishings and Woodworking sector. This sectoral training centre was set up in 1988. In order to develop and support training and competency policy in the sector, OCH is operating in various fields and for various target groups:

- Training courses and competency policy for companies and employees. Guidance and training recommendations, monitoring of the training market, etc.
  - Monitoring of the labour market in line with problem area vacancies. Induction of new employees (jobseekers' training)
  - Assistance for outflow through sectoral outplacement, etc.
  - Link between education and the labour market, including through suitable wood education. Refresher courses and company visits for teaching staff, follow up on "Learning and Working", promoting work placements, etc.
  - Sector promotion and image
- ◆ Skill needs: structures to monitor developments in technology, competencies and training

### ☐ BBRI (Belgian Building Research Institute) Technical Committees

The BBRI has sixteen Technical Committees. Eleven of these are devoted to a specific construction discipline and are chaired by a contractor, while an engineer-coordinator appointed by the BBRI is charged with the proper conduct of their meetings. Furthermore delegates from the construction trades concerned and various other experts also sit on these occupation-related Committees. Four other Technical Committees, which are also chaired by a contractor, are tasked with directing the more horizontal themes cutting across the occupations (including hygrothermy, acoustics and business management). The latest Technical Committee is made up of delegates from the world of architecture and is responsible for consultations with designers.

The various Technical Committees that conduct research campaigns – this involves the eleven occupation-related Committees and the horizontal Committees in particular – are required systematically to prepare a three-part work programme (information transfer, information gathering and other action). As far as information transfer is

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concerned, the Technical Committees develop Technical Information and reports. In order to be able to disseminate information, one needs first and foremost to gather the requisite information. This involves research activities that usually run for several years and that can be innovative as well as pre-normative in nature. In addition to this, participation in these activities on standardisation and technical approval constitutes an important source of information.

Their task is to direct research into their specific field from a practical point of view (bottom-up approach) and to ensure that the research results are transferred to the shop floor in a usable manner.

### ▣ Constructiv

The sections ensure that the training content is optimally matched to the specificities of the various distinct occupations. They issue advice to the Constructiv Board of Governors. Each section is led by a core group made up of experts from Constructiv member organisations and employees in the training department.

### ▣ Incentives, changes and innovations concerning sustainable building

#### ◆ Incentives

The development of a socially supported policy framework that premises nZEB-buildings (nearly zero energy building) as a realisable exigency is an important social challenge. It will require large investments in the fields of energy efficiency and renewable energy by prime contractors as well as companies/the industry and the public authorities.

It is important that those investments are executed in a correct way because of the following aspects:

- avoiding health troubles;
- good general performance;
- maximal longevity;
- maximum energy efficiency;
- avoiding risks for the installer;
- avoiding risks for the user of the building;
- avoiding building physical problems (cracks, moisture problems, ...);
- realising a market embedding and a stable growth of the innovating techniques;
- agreement between real (measured) pay-back time and theoretical pay-back time.

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Hence, guaranteeing a high-quality execution is a necessary condition in the framework of the developments in the fields of energy efficiency and renewable energy that the construction industry will experience by the year 2020.

### ◆ Need for qualification and skills

The renewal of the existing professional competence profiles started in 2011 in collaboration with the social partners, BBRI and experts in the industry (technical experts and safety experts). This process was finished at the beginning of 2014.

The professional competence profiles contain an overview of all activities and the associated competences for each profession. In order to respond to the challenges brought on by the EU 2020 goals, they all have a solid 'green' foundation. Profiles will be available and will form the starting point for the development of adapted training programmes and didactic tools as well as for an appropriate screening of potential construction workers.

The roofer's profile has been completed in 2011 (22). Before, the main question was: "How and with which materials can we tile a roof and make sure it is watertight?".

Nowadays, the questions that have to be posed and answered are more complex:

- What are the exigencies in the field of energy efficiency?
- What is needed in terms of insulation?
- With which adjusted materials does the work have to be executed?
- How can we make the roof airtight?
- Does the installation of solar panels have to be foreseen?

These new questions bring along new exigencies in terms of the roofer's professional competence. By mapping the new exigencies and new techniques (insulating in an airtight way, posing thermal insulation, etc.), the basic and advanced vocational training for roofers can be adjusted to these new needs.

### ▣ Drivers and barriers for the development of sustainable construction

The challenges in the field of sustainable building, that have been reported in this study as well, are endorsed by the social partners. Green economy and sustainable building are necessary answers to the ecological and societal challenges. Not only does the environment benefit from the achievement of ecological goals, such as raising the use of renewable energy and improving the energy efficiency of buildings, a reduced

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dependency on gas and oil can provide economic added value, too. Improving the energy efficiency of buildings and raising the use of renewable energy does have practical consequences for the construction sector. Improving the energy efficiency of buildings and raising the use of renewable energy does have practical consequences for the construction sector. The social partners point out that a well thought-out answer has to be provided regarding these consequences. The answers have to be situated in different fields. The following passage contains an identification of these fields, the subsequent passage provides more details on the elements which the social partners will have to discuss.

- ◆ What is sustainable building? Which materials and techniques are used?
- ◆ Performance standards in the field of sustainable building, as opposed to the obligation to use best efforts
- ◆ Sensitisation of the executor and the contractor
- ◆ Societal levers for the promotion of green economy and sustainable building
- ◆ Impact on the employment
- ◆ The efforts go beyond Joint Committee no. 124
- ◆ What is sustainable building?

Sustainable building can be considered as a means to reach a goal. By raising the use of renewable energy, improving the energy efficiency of buildings and using renewable materials, ecological and economic gains can be achieved. There are different possible ways of proceeding in order to achieve these goals. For example, insulation is important for the energy performance of a building, but can be done using various materials. Several questions have to be taken into account:

- Concerning safety and well-being: can we use those materials, with regard to the final occupant or user of the building as well as with regard to the person who handles them, i.e. the construction worker? For instance, regarding insulating materials, we can ask the question of knowing what are the long term effects. It is not the social partners' task to pronounce themselves on what is sustainable building, but it is their job to take into account the possible consequences the use of new techniques and materials can have in the field of safety and well-being.
- Concerning the competencies: the use of new materials and new techniques will lead to additional requirements concerning the competencies required from construction workers. The social partners think that a good follow-up of these renewed competency requirements

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is of the essence. That is why the follow-up of the competencies required and the permanent update of the professional competence profiles are important tasks that matter for both construction workers and entrepreneurs.

- Concerning the efficiency and purposiveness of the materials and the techniques: which materials are best to make the desired energy profit? How can a construction entrepreneur and his workers indeed meet the required energy standards?

In order to find an answer to the question of knowing: "Technically speaking, what is the best way to build "in a sustainable way", as well as in a safe and competent way?", the social partners can appeal to the different sectoral knowledge centres, such as BBRI and "Opzoekingscentrum in de Wegenbouw", but also Constructiv's Technical Knowledge Centre.

- ◆ Performance standards in the field of sustainable building, as opposed to obligations to use best efforts

Prime contractors will be confronted with a different approach. For example, in the past, x centimetres of insulation had to be installed, but in the future, the energy performance of a building will have to reach a certain level. Therefore, the competency level of construction workers will have to meet other exigencies. In order to keep on guaranteeing the workers' employability and to safeguard their position on the job market, it will not only be a challenge to keep up with the different technological evolutions, but also to really translate them into an adjusted training policy within a sectoral framework. This policy can be supported by the sectoral partners using the sectoral levers needed. A high-quality training offer has to exist and has to be adjusted to the needs of the companies and the workers they occupy. Apart from that, the necessary levers (financial as well as with respect to content) have to be offered to make sure that an answer can be given to every competency need that is detected.

- ◆ Sensitisation of the executor and the contractor

Sustainable building often entails extra costs for the commissioner. This can impede the commissioner from making the efforts needed. Apart from that, the executor/prime contractor often has contacts with the commissioner and can give him all information needed concerning the surplus value of these investments and concerning the extra surplus value of a high-quality execution. Ideally, there is promotion in order to raise awareness of the advantages of a higher-quality execution and higher-quality materials.

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In the framework of this promotion, the final user has to be informed on how he can recognise a qualified professional and good quality and what he can realistically expect. The different social partners already undertake initiatives in that context. From the trade union side, there are initiatives in the field of training and awareness-raising among trade union representatives (RISE, BRISE, ...). For example, workers are sensitised to broach the subject of sustainable building in their company. Apart from that, several initiatives are also undertaken by the employers' organisations (concerning awareness-raising; quality labels, training, documentation, ...). These initiatives can be built upon.

### ◆ Societal levers for the promotion of green economy and sustainable building

The (federal and regional) governments put important levers at the public's disposal. The social partners raise a question concerning the continuity of the measures. Levers (financial contributions, tax deduction, etc.) are often modified between times, for example because of a new policy. The social partners throw in that this often has negative effects and ask that the continuity stays guaranteed. Renovation works, for example, have to be planned in the long term.

### ◆ Public governments as owner and prime contractor

Public governments are a big contractor in the field of buildings and infrastructure. In that framework, they have an exemplary function, as well with regards to the materials and techniques that are used as with regards to the granting of contracts to executors.

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### 4. Joint consultation and sustainable building

#### 4.1 Industrial relations system in the construction sector

Belgium has an elaborate system of social dialogue on all levels (interprofessional level, sectoral level and company level) and concerning the different socio-economic fields (economy, social policy, safety and health). This institutional system of negotiations that are carried out on different levels between social partners results in the conclusion of collective labour agreements. The joint committees were created in order to negotiate on collective labour agreements in every activity sector. The results concern the terms of employment as well as the wages and the maintenance of social peace.

Every two years, employers and workers try to conclude an interprofessional agreement. In this agreement, engagements are determined concerning the "social progression" (wages, employment, training, ...) they want to realise for both working and non-working population. The interprofessional agreement applies to the whole of the Belgian private sector and offers a framework for negotiations in the sectors that have concluded agreements on the wage conditions and terms of employment.

In their capacity as social partners, employers and unions are also represented in numerous other advisory and consultation bodies, among others in the Social Security's management bodies. Since the state reforms, regional consultation structures have also been created. The most important ones are the economic and social councils, in which the social partners formulate recommendations towards the regional governments concerning bills and themes with a social or economic impact. Apart from that, the social partners are also represented in the advisory councils specialised in other regionalised authorities, such as environment policy, education, science policy and environmental planning. Finally, the social partners are members of the management bodies of different regional public institutions, such as employment offices and services for professional training.

In companies with over 50 workers, social elections are organised every four years. Through these elections, workers can appoint their delegates.

#### Social consultation in the construction sector

The employer's and employee's organisations are represented in the Joint Industrial Committee for the Construction Industry. In this joint committee, engagements are determined concerning the consultation in companies and negotiations are carried out

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concerning the wage conditions and terms of employment of 150.000 workers in the construction sector. The negotiations take place every two years.

Constructiv was created within this joint committee. Constructiv is a social protection fund for construction workers. Its core tasks include the granting of additional social benefits, prevention, safety and professional training. Constructiv is financed through social security contributions.

On company scale, the social consultation is carried out by the employer and the union representatives. Staff representatives are appointed by the representative trade unions in all building companies occupying at least 30 workers.

### 4.2 Role of the joint consultation in support of sustainable economy and sustainable buildings

There are several partnerships in the field of green competencies in which the different social partners are involved directly or indirectly (e.g. via Constructiv, a joint working organisation).

- ◆ In Wallonia

- ▣ Greenwal

Wallonia created its own centre of excellence, Greenwal, that focuses solely on sustainable building. Its objective is:

- ◆ to boost the sectors of renovation and construction of new buildings
- ◆ to build bridges between training, research and innovation
- ◆ Greenwal's members are:

- ▣ The employer's organisations
    - ▣ The employee's organisations
    - ▣ Other parties concerned

Greenwal offers the following services, activities and projects in the field of sustainable building:

- ◆ Trainings
- ◆ Dissemination of information and advice
- ◆ Demonstration of innovation
- ◆ Monitoring and prospecting

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- ◇ Support during the start-up of activities

The target audience for this services consists of:

- ◇ Consulting firms (public and private), architects, communal architects, energy advisors, specialists in urban development, property developers, housing departments, etc. (for the design of the project)
- ◇ Employees (working or non-working), contractors in the construction sector (very small businesses as well as SMBs), site managers and workers active in all activity fields (structural, special techniques, roofers, etc.), municipal and provincial office workers, mandatories, the trainees in the IFAPME network, etc. (for the realisation of the projects)
- ◇ The instructors (who are active and are part of one of the aforementioned categories)
- ◇ The general audience: future builders, renovators, schools, etc. (by means of sensitisation actions, open days, access to documentation and advice)
- ◇ Young people who are following a training
  
- ◇ ConstruForm

ConstruForm's two competency centres (in Hainaut and Liège) encompass nine locations along the Mons-Charleroi-Namur-Liège axis (“dorsale wallonne”): ConstruForm Hainaut comprises four of these locations (Châtelineau, Braine-le-Comte, Gembloux and Mons), ConstruForm Liège six (Huy, Gembloux, Grâce-Hollogne, Liège, Villers-le-Bouillet and Flémalle). The Gembloux site is shared by the two centres. The target audiences: company managers, workers and employees in the construction sector, jobseekers, teachers and students in final-year classes, apprentices. The partnership is based on centralising materials and resources of the two public training institutes Forem and IFAPME.

- ◇ In Brussels

- The Vocational Reference Centre for Construction

The Vocational Reference Centre for Construction CDR-BRC was created in the framework of the Alliance Employment-Environment concluded between several partners, being the government of the Brussels Capital Region, Actiris, Bruxelles Formation, VDAB and the construction sector's social partners.

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CDR-BRC's activities focus on young people in technical and vocational education, jobseekers, workers, teachers and instructors and can be divided into three main categories:

- ◇ Doing something about the shortage of trained workers and increasing the intake of students from construction education in the construction sector
- ◇ Stimulating the communication between education, the Brussels institutions (including Actiris, VDAB, Bruxelles Formation and EFPME) and the construction sector
- ◇ Creating a framework in which a sustainable collaboration in the field of the integration of new technologies, the quality of work placements and workplace training, etc. can be further developed.

- ◇ In Flanders

- ▣ Task force Sustainable Building

The TASK FORCE Construction consists of Constructiv (that unites the social partners), the Flemish federation of SMEs of the construction industry Bouwunie, the Building Confederation, the centre for sustainable construction Centrum Duurzaam Bouwen, Syntra and VDAB.

The TASK FORCE Construction co-ordinates the training environment and supports the exchange of information between the different parties concerned. The institutes that provide more conceptual, theoretical trainings, like Syntra and the Building Confederation, and the practical trainings given by VDAB complement each other.

In the TASK FORCE Construction, the different training partners and parties concerned by the construction sector mutually consult. At the moment, the priorities are:

- insulation and airtightness, roof
- construction knots
- timber frame construction

An important challenge for the future will be to give the collaboration between the instructors and the training operators a more operational character. Some important themes in the changing competencies are environment, quality and well-being. Those themes have been included transversally in the professional competence profiles for the construction sector. The transversal competencies mainly concern:

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- awareness of airtightness and ventilation
- sealing and covering with tape
- heat losses
- moisture insulation

In the meantime, a lot of trainings have been developed and implemented and, in consultation with the construction sector, the task force sustainable building has drawn up a new priority listing that fits in with the Flemish nZEB action plan.

### ▣ Drivers and barriers for the social dialogue

#### ◆ Impact on the employment

In the text above we already mentioned that the evolutions in the field of sustainable building have an effect on the competencies construction workers have to have. The professional training of young people and the advanced vocational trainings for construction workers have to be adjusted to these evolutions (in a technical and non-technical field). On the one hand, we have to avoid an increase in the shortage of qualified workers. On the other, the employability of the construction workers who are already active has to remain guaranteed.

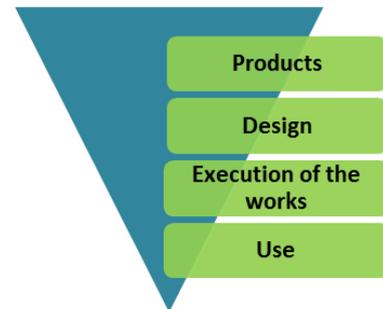
#### ◆ The efforts go beyond Joint Committee no. 124

By definition, the Joint Committee no. 124 (competent for construction workers) is only competent for blue-collar workers in the construction sector. However, the evolutions in the field of sustainable building are not limited to this target group. White-collar workers (designers, site managers, etc.) who are active in the construction sector are faced with these evolutions, too. Furthermore, other activity fields and target audiences are also involved in the evolutions in the field of sustainable building: architects, electricians, the wood sector, manufacturers of building materials, etc. One of the consequences of sustainable building is that communication between the different parties concerned will become more important (cf building knots), as well on the construction site as during the preparatory activities (design, materials and techniques used, etc.). The social partners suggest that a platform can be created in which the different parties concerned (wood sector, electricity sector, technical knowledge centres, manufacturers, merchants, social partners, architects, training institutions, etc.) can meet in order to specifically discuss these subjects. One of its goals could be to promote the transition of technical evolutions to the training field.

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**COUNTRY REPORT - BELGIUM**
**5. Guidelines for social dialogue in green building: tools & areas of action**
**5.1 Tools to strengthen the social dialogue**

The platforms and tools to organize the social dialogue are present, This is not the main challenge in Belgium. The challenge is the improvement of the competence level of the Belgian construction workers with regards to sustainable building. Specific measures to improve this competence level can be grouped in five clusters.



Specific measures, often cross-technology, can be determined. These measures aim to increase overall quality in the process (see figure) to deliver renovations offering a high energy performance as well as new, nearly zero-energy buildings.

Given the target group, namely the on-site construction workers and system installers in the building sector, the determined measures focus mainly on the phase ‘execution of the works’.

However, the previous phases (products and design), have a significant impact on the final quality, and cannot be neglected. To ensure maximum longevity and efficiency of the installation or the building, the use phase with correct handling, monitoring and maintenance is essential as well.

There are several actors with direct or indirect impact on the quality delivered by these on-site workers: architects, managers, manufacturers, retail & wholesale traders, consumers, ...

Various barriers will only be eliminated if all relevant actors are involved and included as target groups. Moreover, advanced or new cooperation mechanisms between the main actors should be further developed.

**AWARENESS RAISING IS CRUCIAL**

Awareness raising is considered as a *conditio sine qua non* to make any progress. The market is demand-driven, and to avoid a business as usual scenario, proprietors need to be aware why and how to demand quality. Dissemination and training for the on-site workers and their supervisors have to be adapted on their level of competences (experience, knowledge, capacities...).

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*Measures to strengthen social dialogue can be derived from five strategic clusters:*

1. *Instruments for quality control.*
2. *Dissemination and awareness.*
3. *Reorientation vocational training.*
4. *Contribution of the manufacturers.*
5. *Redefining professional competences.*

### 5.2 Area of action

#### 5.2.1 Policies and legal framework

##### ▣ IMPORTANCE OF QUALIFICATION SCHEMES (*Instruments for quality control*)

Stakeholders have indicated the importance on qualification schemes as instruments for quality assurance. On the condition that investment in quality assurance is rewarded, it is recognised that mandatory control mechanisms and/or certification<sup>1</sup> schemes have a significant added value as motivator for raising knowledge, keeping this up to date and applying it during execution of the works. These qualification schemes need to be developed in accordance with or by the relevant actors. By doing this, the installation and/or the quality of the final product is made actionable. This can be done by introducing a labelling of the executor (and/or the employer) or by doing a control on the executed activities and the provided services, or even by the drawing up of an internal training scheme in an organization.

#### 5.2.2 Working conditions and new skills

##### ▣ Adaptation of the existing competence profiles (*Redefining professional competences*)

Competence profiles are available for different professions in the construction industry. Ideally, they are adjusted as much as possible to the technical information sheets and the different technical specifications. These two documents are technical and have to be translated correctly into competences for each profession by means of the professional competence profiles. The competence profiles are the reference documents in which the content of the education and vocational training courses are defined.

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<sup>1</sup> Certification refers to the confirmation of certain characteristics of an object, person, or organization. This does not necessarily imply third-party certification.

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The competence profiles have to be expanded with the necessary soft skills or attitudes concerning collaboration. The professionals have to be open to the different steps in the construction process and take into account other people's activities. For this purpose, the attention will have to be focused not only on the technical aspects, but also on, among other things, the communicative skills (the professionals have to learn each other's language), conflict management, professional honour, etc.

Interaction between professions on a worksite could be identified (how, stages of work,...). A logical and ideal work method could be determined.

Ultimately, we have to make sure the professional competence profiles are permanently updated and implemented in training programmes, so that they are adjusted as fast as possible to the reality of the work field. For instance, future updates should also take into account the evolutions in the domain of digitalization.

▣ New function: energy coordinator (*Redefining professional competences*)

Creation of a new profession and/or function: a person who can propose the best available techniques (energy - design) on the basis of the specifics and who can coordinate the execution of those techniques.

By means of intermediary controls, he can immediately provide the executor with feedback, so that this person can intervene on time if that is necessary. Lastly, he coordinates the post-project assistance.

The first step will be to verify if this function requires a new profession or whether it concerns architects, site managers, team leaders, EPB controllers and safety coordinators, who will have to acquire extra competencies.

▣ Reorientation of trainings: Integration of the element 'Renewable Energy' in the existing training courses (Reorientation vocational training).

The content of this training has to be in line with the expectations in the work field. In other words, the training has to be adjusted as much as possible to the reality of the (best) practice. Only then can such a training produce good workers and be a promotion vehicle for the profession.

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- ◆ General training material could be developed.
- ◆ Train the trainer sessions: the trainers have to be correctly trained so that they can teach and transfer the content of the training and the training material in a high-quality way.
- ◆ Well-equipped rooms with a correct pedagogic disposition are needed.

▣ Training modules for different levels (Reorientation vocational training).

It is necessary to develop vocational trainings for different professionals. The executors' training needs not only vary in function of the different backgrounds they have, but also in function of their 'level', as well in accordance with their function on the construction site (executor, team leader, etc.) as in accordance with their experience level. Additional short modules for different target audiences have to be developed in addition to the existing offer. In order to enable this development, there first has to be a consensus on the content of the activities that will have to be executed.

- ◆ development of mixed trainings. Mixed trainings are trainings that are not meant for the traditional (homogeneous) target audiences and that are not theoretic. They are practice-related trainings that are given in the form of workshops for people from different disciplines.
- ◆ Training courses have to be practice-oriented. The best place to give them is in a training centre in which the different techniques can be demonstrated, e.g. with the support of installations that the industry puts at disposal.

▣ Interdisciplinary training courses (Reorientation vocational training).

There is a need for interdisciplinary training courses in which the building professionals acquire knowledge of the other professions. The goal of this is to revalue the knowledge of and the respect for the work of other people.

▣ Train the trainer courses (Reorientation vocational training).

It is important to find the right trainers and to make sure they are trained well themselves (train the trainer). This training not only has to be technically correct, but the trainers also have to be informed on the importance of the different technologies and the importance of a high-quality execution. Trainers need to have sufficient pedagogical skills and need to adapt their course to the public (difference in level of participant or goal of the participant). An inventory of the existing training courses and training centres (as well for general as for sectorial training courses, e.g. for

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manufacturers) has to be established. Further on, the need for TTT training courses has to be estimated.

### 5.2.3 Technology, Knowledge, Innovation of the productive processes

#### ▣ Building your Learning (*Dissemination and awareness*).

A centrally managed portal site and/or accessible data base is drawn up, so that basic data and details of good executions, simulation tools, etc. can be consulted. These data have to be offered in a global and centralised way and they have to be in line with ongoing activities or existing initiatives. Fragmentation of the channels is not an option. A digital and interactive construction library is now available. The initiative for this library was taken by Constructiv (joint organisation) in order to promote an innovative, pioneering, interactive and highly attractive education towards the construction trades.

At the moment, more than 2,000 educational resources can be downloaded that reflect the realities of the construction industry and teaching methods adapted to young audiences:

- ▶ targeted excerpts from Constructiv's trades manuals;
- ▶ tools and materials that have been proposed by the teachers and other instructors who wish to share their educational resources;
- ▶ PowerPoint presentations made by Constructiv or proposed by a teacher or an instructor;
- ▶ video materials and links to interesting sites from manufacturers;
- ▶ "ConstruBooks" (e-books): a new form, but above all a new concept for learning trades that provides a personalised and interactive navigation through the content. These e-books are interactive manuals that open up new learning paths adapted to young audiences and to the new technologies, so they are very attractive as materials that can help develop things like:
  - Reversed education forms in which the students go through the indicated materials at home so that more time can be spent on the practical implementation at school;
  - A teaching aid for the tutor who will accompany a young person during his learning experience on the construction site or the teacher in his workshop;
  - A personalisation of the course material for the teacher who will be able to create a trajectory that is adjusted to his students' learning speed: based on the pedagogical sessions and the students' level of learning.

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The teachers also have to possibility to propose teaching aids that can be added to this digital library. When their tools are uploaded, they are validated by the Centre of Technical Competencies before being published in the digital library.

### ▣ Mobile technologies on the construction site (*Dissemination and awareness*)

Smartphones and tablets are increasingly used on construction sites. They have truly become mobile offices on the construction site, with various levels of use on all levels and in all functions of companies.

Digital supports can be used in order to register one's personal data, look at the weather forecast, send information by mail, plan the appointments with the other parties and the suppliers, browse through ConstruBooks, ask for technical advice, generate a photographic survey and before long also a metric survey, regulate a heating or ventilation system, etc. Their use as an information and communication tool and as a tool for the regulation of the construction site has become an integral part of the technical learning path.

In the long run, we can imagine all these applications being connected to the digital model that is shared between the author of the project and the company in order to set up a 3D construction site workbook that is associated with the complete lifespan of a building.

Construction workers will have to acquire new competencies in order to control the use of these new technologies and to be able to adapt to the actual impact on the content of their job.

### ▣ Harmonised communication from the manufacturers

The manufacturers have to announce their products' performances in the best, reliable and most neutral possible way through their technical sheets, attestations of technical approval/eTAG's, CE attestations, BENOR attestations, etc. Therefore, they have to dispose of harmonised standards or test standards for the classification of components.

In-house trainings that have both a neutral and a commercial component can be foreseen. In consultation with the knowledge centres and sectorial funds, the manufacturers determine the content of the neutral part, so that this can be maximally harmonised. A control on the quality and the content of these training courses and their permanent update seem to be absolutely necessary.

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### ▣ "Habiter sa classe"

#### ◆ Goal

This project aims to design educational resources for the "education through technology" course that is given in the lower secondary education in the Federation Wallonia-Brussels (Belgium). The resources will provide the teachers concerned with a method and educational tools in line with the specific objectives of the "education through technology" course. In reference to these goals, the students will have to develop technological problem-solving skills by using the technical aids and the equipment they can find in the classroom. By doing so, they will discover the construction techniques and trades.

#### ◆ Educational method

The project that will be proposed to the students is called "Habiter sa classe". It aims to promote well-being in the classroom that they use the most, ensuring the effective use of energy and optimum protection of the environment. The suggested situation/problem will be: **what are the sources of discomfort and how can they be remedied?**

#### ◆ Participative audit

Every research aimed at improving a situation starts by drawing up a "state of affairs" of the situation. The first step towards resolving the problems will be that the students carry out a **participative audit** of the classroom that they use.

#### ◆ Areas of improvement

Avenues will be proposed to help fuel the research for improvement. They will have to be "accessible" for the students in the lower secondary education. Below, you can find some examples of areas of improvement that will be suggested.

#### **Thermal comfort:**

- Secondary glazing by means of a (heat-shrinkable) stretched transparent film;
- Wall hangings that can be used to create an insulating blade of air;
- Reflective foil on the insulation behind the radiators;
- Insulation from within of the cool walls;
- Sealing of the cold air intakes (cracks, faulty chassis, ...);
- Reflective internal blinds to prevent overheating ...

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### Acoustic comfort:

- An absorbent to limit the resonances in the room (wall hangings, carpets, wool panels on the walls, ...);
- Sealing of acoustic leaks;
- Protective pads under chairs to limit the noises of moving chairs;
- Doubling of thin walls ...

### Visual comfort:

- Light-coloured paint on the walls to increase the amount of light reflected;
- Cleaning or removal of the opal glass on the lights;
- Added reflectors on the lights;
- Transparent stores to reduce glare ...

### Quality of the air:

- Indication of the CO<sub>2</sub> and/or humidity content and aeration of the classroom when it exceeds the maximum allowable value;
- Arrangement to maintain a permanent basic ventilation;
- Intensive ventilation during unoccupied periods ...

### Quality of life:

- Paint and/or fresco on the walls;
- Refurbishment of the classroom furniture;
- Friendly interior design of the workspace;
- Removable panels to create separate work stations ...

#### ◆ Introduction to construction

To help fuel their research for improvement, the students will have technical datasheets on the amenities that contribute to the comfort of a room. Every component of the comfort will be discussed. These datasheets will also explain the role of the construction professionals during the design and construction of these amenities.

#### ◆ Educational resources

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Three types of resources will be proposed:

- documents, an educational guide and technical datasheets;
- equipment and measuring devices associated with observation checklists;
- a coach who guides the participative audit.

### ◆ Partnership

The educational resources will be designed by the university team, which brings together the Architecture and Climate and "Scienceinfuse" units of UCL and CIFFUL and is coordinated by CIFFUL. Constructiv will promote the resources to the schools.

#### 5.2.4 Cultural dimension

- ▣ Change in mindset (Dissemination and awareness).

A change in attitude of professionals is required. The workers will also have to be open to what is happening in other professions. An important question that arises is: what belongs to whom on a construction site? That intermingles a lot these days, hence the required change in attitude. That same change in attitude will also be required of trainers. They will also have to take a look at what their colleagues in other professions do.

- ▣ More knowledge of EE and RES technologies has to reach different target groups (Dissemination and awareness).

One could imagine a communication campaign that focuses on the general public and another campaign that focuses on a professional public. The campaign for the general public can make use of TV, radio, the general press and schools, while the campaign for the designers can make use of specialised channels/publications that can reach all concerned parties (architects, engineers, contractors, workers). In addition, there could be promotion in order to raise the awareness concerning the advantages of a higher-quality execution and higher-quality materials. In the framework of this promotion, the final user has to be informed on how he can recognise a qualified professional and good quality and what he can realistically expect. Such a campaign is meant to enhance the call for high-quality installations.

The development of a basic package that can be offered to secondary schools, colleges, universities can also be considered.

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### 5.3 Directions for the social dialogue at a European Level

Based on the previous text, one might suggest two key elements that could be taken up on a European level:

- Establishment of paritarian funds : Social dialogue resulted in the establishment of paritarian funds in Belgium. The members of the board of administrators of these funds are representatives of the employee and employer organisations. The mission of these paritarian funds is drawn up in collective labour agreements. The Belgian construction industry has one paritarian fund: Constructiv. It is active in the following domains:
  - ◆ social advantages
  - ◆ well-being
  - ◆ vocational training

These funds play an important role in bringing the social partners together and as such are sometimes the “engine” that promotes industrial relations. These funds, as a result of the mission they are bestowed with, can play an active role in society and act as a lever to help reach the objectives that are defined by social partners by means of:

- ◆ financial incentives
  - ◆ developing networks
  - ◆ facilitating
  - ◆ mediating
  - ◆ lobbying
  - ◆ communication activities
- One might suggest the development of professional profiles could also be organized on a European level (e.g. ESCO). However this should be implemented while at the same time considering aspects like: social dumping, access to professions, ... What might seem as beneficial in one context might not be deemed as beneficial in a different setting.

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