

BRICKLAYING QUALIFICATIONS, WORK AND VET IN EUROPE

Michaela Brockmann, Linda Clarke, Christopher Winch*

1. Introduction

Labour mobility in the construction industry is high compared to many other sectors and many construction workers find employment in countries other than those in which they were originally educated and trained and acquired a qualification to work in a particular occupation. At the same time, with the increasingly skilled nature of the construction labour process, qualifications provide a more and more important means of recognizing a person's level of competence, skill and knowledge. And, with rapid changes in the nature and number of firms in the industry across Europe, it is more and more difficult to rely only on a person's experience and personal references as proof of their abilities. All these factors have prompted the need to establish a European Qualifications Framework (EQF) to facilitate mobility, recruitment and career development. Bricklaying, as a typical construction occupation, is as exposed as any to these changes and thus provides a good example to explore the difficulties and possibilities of recognizing qualifications in the construction sector across Europe.

This article is based on an European Commission Leonardo-da-Vinci study 'Bricklaying Qualifications, Work and Vocational Education and Training (VET) in Europe', the overall aim of which is to enhance the comparability and transferability of bricklaying qualifications in the context of the implementation of the EQF. It seeks to compare the nature, content and regulation of different qualifications and VET for bricklaying in eight European Union (EU) countries: Belgium, Italy, Germany, the Netherlands, Denmark, England, Poland and France.

2. National Qualification Frameworks (NQFs) and the EQF

The idea of a qualification framework is to provide a common basis of comparison for all qualifications recognized by the state or internationally, be they academic or vocational. The possibility of establishing equivalences in qualifications is therefore essential to such a project. The easiest way to conceptualise this framework is as a two dimensional grid, as illustrated in Table 1, which is the one used for the EQF. The rows on the grid represent levels of achievement from primary school to doctoral level. The vertical columns represent significant cognitive subdivisions: knowledge and skill are distinct categories and others, to do with, for example, managerial capacity, may constitute a third. In the case of the EQF, two qualifications, A and B, are equivalent if they lie at the same horizontal level in all three cognitive subdivisions on the grid. A qualification framework takes two or more qualifications, and determines their equivalence in terms of their specification, usually as 'learning outcomes'. This brief description applies to both the EQF and to NQFs.

Both the EQF and NQFs are similar in the sense that they use a grid of vertical and horizontal classifications of qualifications in terms of cognitive characteristics (columns) and cognitive levels within an academic hierarchy (rows). Comparisons are made by locating two or more qualifications in rows within the grid. If the location of the row coincides, the qualifications or qualification classifications are deemed equivalent. This can be clearly seen in Table 1 for the EQF, but the basic idea already existed within NQFs developed in different countries, for example South Africa, England and Ireland, prior to the setting up of the EQF. It should not be assumed that NQFs correspond to the exact features of the EQF. For example, there may be different numbers and types of academic levels and fewer or more specified types of cognitive characteristics, but the basic idea of comparing qualifications or types of qualifications is the same in both cases. Thus, if two qualifications, A and B, can be characterized in terms of their learning outcomes in each of the cognitive subdivisions of

* This is a summary of a synthesis report. The full report is available as a CLR-Report on www.clr-news.org
The underlying research was funded under the Leonardo Programme, Grant Agreement : 2008-1929/001-003.

knowledge, skill and competence at level 3, they are deemed to be equivalent to each other. This is the general pattern for all qualification frameworks.

Table 1 Outline of the European Qualification Framework. Cognitive Characteristics

Academic level	Knowledge	Skill	Competence (Autonomy and Responsibility)
Level 1 (upper primary)			
Level 2			
Level 3 (upper secondary exit)			
Level 4			
Level 5			
Level 6 (Bachelor)			
Level 7			
Level 8 (doctoral)			

NQFs generally compare all or some of the recognized, individual national qualifications directly with each other. The EQF is not intended to provide a direct comparison of two or more qualifications but to compare qualifications that are already classified on an NQF. The EQF takes two or more classifications of qualifications from different NQFs and provides a judgement of equivalence or non-equivalence between those qualification classifications, based on their classification within their own NQFs. Because it is designed primarily to be used with NQFs, it is sometimes known as a ‘translation device’, because it ‘translates’ a classificatory judgment in the qualification system in country A to its equivalent in the qualification system of country B. It is thus not intended to be used as a direct method for determining the equivalence or non-equivalence of particular national qualifications.

3. The European bricklayer: trade or occupation?

A key problem we confront in attempting to establish the equivalence of the bricklaying qualification across Europe is whether we are talking about different kinds of bricklayer. How far does bricklaying remain a demarcated *trade*, defined by output and performance with its boundaries clearly distinguished from other building trades on the basis of employer-defined tasks in the workplace? Or can bricklaying be regarded as an *occupation*, negotiated and regulated by a range of stakeholders – including the social partners and educationalists – and defined in relation to the potential capabilities of the person? In each country we can identify characteristics of bricklaying as both a *trade* and an *occupation*, with one more dominant than the other. The importance of the distinction though relates to the different nature of the system of governance of qualifications and the different modes of VET associated with each.

The governance of bricklaying qualifications ranges from the trade-based system in England and, to a lesser extent Italy, to the social partner based systems of Belgium, Germany, the Netherlands and Denmark (Table 2). With these latter countries the state plays a critical role, certainly in funding, though not to the same extent as observable in France and Poland. The state role also varies, being ‘arm’s length’ via quangos in England, minimalist in Italy, confirming in Denmark and developing guidelines in Belgium, rules and procedures in the Netherlands, and jurisdiction and supervision in Germany, France and Poland. Even despite these variations, VET may be partly funded by a levy/grant system (England, France, Belgium, Germany, and the Netherlands) or by joint funds (Italy and Poland). Only in Italy, Belgium and to a lesser extent Germany are there important regional divisions.

Table 2: Structures of Governance of Qualifications

	Social partner/ employer regulation	Funding mechanisms	Central/ regional	Responsibility for defining qualification	Training (OLM) versus production (ILM) model	<i>Craft (Handwerk)</i> versus Industry division	Role of state
Denmark	Social partner	State + levy/grant	Central	Social partner trade committees	OLM/Trade	Yes	Confirming
Belgium	Social partner	State + levy/grant	Important regional element	Vlor + social partners	OLM	No	Develops guidelines
Germany	Social partner	State + levy/grant	Important regional element	BIBB+ social partners	OLM	Yes	Jurisdiction and supervision
Netherlands	Social partner	State + levy/grant	Central	Social partners	Mixed	No	Sets rules and procedures
Poland	Government	State + training fund	Central	Government	OLM	No	Jurisdiction and supervision
France	Social partner	State + levy	Central	CPC + social partners	OLM	No	Jurisdiction and supervision
England	Employer	State + levy/grant	Central	Employers/ trade associations	Trade/ILM	No	Dominance of quangos
Italy	Social partners and regions	Joint funds	Regional	Regional via apprenticeships	ILM	Yes + coops and SMEs	General approach, minimal

The dominance of a ‘production approach’ relying on employers ‘growing’ their own workforce and bricklayers picking up skills over the years is perhaps most evident in Italy and, to a lesser extent, in England, though a significant minority in the Netherlands (36% or 21% under 30 years old) and in France (30%) are not qualified (Table 3). The bricklayer in Belgium, Denmark, Netherlands, Poland and Germany is nevertheless active in an occupational labour market, dependent on a clearly regulated VET and qualification system.

There are significant differences in the importance of bricklaying in the industry, the mason being by far the most important construction occupation in France (numbering 470,000 or 39% of the workforce), a key though less numerous occupation in Belgium and Germany (numbering 24,000 and 105,00 respectively or 15% of the workforce), rather less important in Denmark and England (numbering 14,700 and 97,030 respectively or 7% of the workforce) and less significant (12,146 or only 3% of the workforce) in the Netherlands where the carpenter assumes more prominent. Altogether, for the seven countries, with the exception of Italy, the number of bricklayers is estimated at nearly 750,000! Though these statistics are highly questionable, given that the workforce is defined differently in each country, they do nevertheless provide an indication. Many of these, as also indicated in Table 4, are self-employed.

Table 3: Bricklayers and bricklaying trainees and VET

	Total work-force 000s	No. masons/ b'layers	B'layers as % of work-force	% self-employed b'layers	No. mason/ b'laying trainees	% of trainee b'layer apprentices	mason/ b'laying trainees as % of masons/ b'layers	mason/ b'laying trainees VET % completion rates	% masons/ b'layers qualified	Normal time in VET	
										% time in school	Total length years
DK	200	14,700	7	10	1,034 (starters) 3,000 (all)			79	65	30	3+
B	180	24,000	15	25	2,008	40	8,3	NA	NA	40	3-4
D	714	105,000	14.8		14,411	78				23% + 24% training centre = 47%	3
NL	395	12,146	3	DK	750	90			64 (79% under 30)	40	2-3
PL					Total 3,500-4,000			80		c. 95+	3
F	1400	180,000 employees 60,000 craft	17	30	20,000	80	8	NA	70	70	2-3
England	1900	97,030	7	majority	9,959	c50	9	c 60	Majority Level 2	20	2
I					21,000 total construction	All				Small, 120 hours	Max 3 years

4. Education or training – What does a bricklayer need to know?

In most continental countries (Germany, Denmark, Belgium, Poland, France, Netherlands), VET is provided through comprehensive programmes, which are part of the wider school system and thus constitute the continuation of ‘education’ (commonly based on a curriculum, with a broad content) rather than ‘training’ as more narrowly focused on the job. VET is aimed at developing the individual for the occupation and employment as well as for life as a citizen in wider society (all six countries). Many countries also aim to provide the basis for further education including progression to higher education, although in practice opportunities may be constrained (France, Germany).

We can distinguish between school- and work-based systems with the latter dominating in most countries. **Poland** stands out in that the dominant route is through the 3-year vocational school, which is based on a mixture of classroom- and workshop-based provision. In **Belgium**, too, 40% of students in any one cohort follow the full-time vocational school route, although another 40% go through the apprenticeship system. The former provides a very broad qualification after 4 years (mason, form setter and steel fixer). However, it is fully modularised, and students can opt to take the bricklaying qualification only. The apprenticeship takes 3 years to complete and leads to a bricklaying qualification.

In the **Netherlands**, too, VET is part of a comprehensive school system. VET qualifications can be obtained through the school based or dual tracks (that is work-based with a college element). Bricklaying is largely practice-based, and the duration for the more common Level 2 qualification is 2 years. Similarly, in **France**, the most common route, the CAP, is integrated within the education system, taking 2-3 years to complete (with apprenticeship the dominant route, where 75% is based with a specific employer and 25% in a training centre).

Both Denmark and Germany have well-established ‘dual systems’ of apprenticeship. The **German** system is perhaps the most broadly conceived qualification, taking three years to complete. During the first year, VET covers the whole field of construction. In the second

year, trainees specialise in one of three construction domains (construction, civil engineering, finishing) – enabling a qualification as a skilled general building worker. Only in the third year is there a further specialisation as bricklayer. VET takes place largely at the construction site (4 days per week) and the college (1 day a week). Apprentices also attend block release training (up to 37 weeks in total) in training centres financed by a levy.

In *Denmark*, in some contrast to the German system, there has historically been a greater emphasis on the classroom-based element of apprenticeship, with the apprentice spending an initial period of at least 20 weeks at the vocational school. However, traditional apprenticeships have also been introduced. Programmes take 3 years and 8 months to complete. They are in two stages: students can qualify as a tiler after 2 ½ years, and obtain the qualification bricklayer on completion of the full programme (3 ½ years).

By contrast, bricklaying in *England* is dominated by high levels of informal on-the-job learning, with the accreditation of existing skills through on-site assessment. The apprenticeship (typically taking 2 years) consists of the NVQ (National Vocational Qualification), Construction Award (the theoretical element), and so-called ‘functional skills’. These elements are narrow in scope and are not integrated with one another. Of growing concern is that increasing numbers seeking to become apprentices are unable to do so due to diminishing training places, just as NVQs are relying more heavily on work-based evidence. As a result, VET in bricklaying is increasingly college-based, with trainees following courses to achieve Diplomas (previously Construction Awards). It is then difficult when the trainee does not have sufficient work experience to succeed in subsequently finding employment within the occupation, and hence achieve an NVQ. Construction VET courses are characterised by a strong demarcation between different construction trades with no common basis.

In *Italy*, the most common type of VET is apprenticeship (with one system for young people from the age of 15, and another ‘professional apprenticeship’ for people aged 18 to 19). However, in the context of scant value attached to formal VET, the uptake of apprenticeship is low, if increasing. The content and structure of apprenticeship is largely determined by regional collective bargaining agreements with little attention paid to quality of provision.

4.1 Content of VET programmes

Some countries (Germany, Denmark, Poland and Belgium) identify ‘competences’ as key learning outcomes of VET. However, these systems are essentially input-based. Competences relate to sets of activities in the workplace and are based on the integration of knowledge, practical know-how and more generic (personal and social) competences, which are commonly not spelled out in detail. These systems can be distinguished from the competence-based system of England and also those of France and the Netherlands, which have adopted outcomes-based approaches. In these countries, qualifications are defined in terms of detailed lists of activities or tasks with performance indicators, and qualifications are awarded on the basis of successful performance of the tasks. There is a further distinction between the English system, on the one hand, and the French and Dutch ones, on the other. In the latter two countries, competences are based on the integration of knowledge, know-how and social and personal dimensions of competence, and relate to comprehensive occupational profiles with a broad scope of activities. While accreditation of prior experiential learning (APEL) is possible, qualifications are typically awarded on completion of a VET programme, aimed at developing multi-dimensional competence. In the English system, competences are narrowly defined, relate to restricted occupational profiles and not necessarily linked to a curriculum. Until recently, the classroom-based element of apprenticeships mirrored the NVQ and only provided the knowledge deemed necessary to carry out specific tasks. In most continental

countries, VET provides a much more profound knowledge base, combining both occupational and industrial knowledge with general and civic education.

4.2 Knowledge

In most continental countries studied VET programmes contain both theoretical knowledge to underpin know-how in the workplace and general and civic education to enable the development of the person in society as a whole as well as within the occupation (Table 4). Importantly, theory encompasses broad knowledge of the industry and occupational and firm-specific knowledge. It also includes underpinning principles such as maths and physics, although what were previously distinct subjects now tend to be taught - notably in France, Netherlands, Denmark and Germany - in an integrated way based around specific sets of activities or competences.

Table 4: Types of knowledge and scope of know-how

	General education and occupation-specific underpinning	Industrial	Occupational (Scope)
Germany	German Economics Social sciences Maths Technical drawing	Labour law Health and Safety Environmental protection	Receiving assignments; monitoring work; work plan and work flow; setting up, securing, clearing of construction sites; checking, storing, selecting material; reading and applying drawings, drawing up sketches; conducting measurements; quality assurance and reporting system; making construction components of wood, concrete; insulation, plaster works, building pavements, tiling, building dry mortarless constructions; setting up building pits and ditches, building roads, water supply and sewerage.
Denmark	Danish Social sciences ICT Maths Technical drawing	Work environment Materials Design Entrepreneurship and innovation Product development and service	Tiling; flooring; preparing and working from drawings; handling materials and tools; bricklaying and surface treatment; mathematical calculations; scaffolding; planning work, including interfacing with customers; collaborating with other actors in the labour process; design concepts; health safety; fitting insulation; bricklaying; and roofing; planning, organising and quality assuring projects.
Belgium	Native language Maths Technical drawing	Yes	Basic masonry; Foundation on steel; Above-ground masonry; Basic concrete constructions; Basement constructions and sewers; Façade; Concrete Constructions.
Poland	Economics Social studies: Sociology and psychology of work Technical drawing	Labour law Health and safety	Organisation and planning of the work; materials, tools and equipment; earth works; brick walls; ceilings, lintel and cornices; woodwork and iron work; concreting; plastering; joining; repair; demolition
Netherlands	Dutch English Maths	No	Laying bricks; gluing
France	French A foreign language History Geography Citizenship Sport Technical drawing	Labour law Health and safety	Preparation of the work; organisation of the workplace; installation of a structure; dealing with site waste; scaffolding; shell construction in blocks and bricks; masonry; reinforcements; formwork; concrete; components; rendering and waterproofing; piping and conduits; keeping equipment in good condition; exchanging information
England	Functional skills (literacy, numeracy ICT)	Health and Safety Environmental protection	Laying bricks: Conforming to general workplace safety; conforming to efficient workplace practices; moving and handling resources; erecting masonry structures; setting out masonry structures.
Italy	Italian ICT	Health and Safety	Varies by region

4.3 Scope of VET

While in all countries, occupational knowledge relates to specific areas of activity, the scope of these activities varies. There is usually a distinction between the workplace or workshop

elements of VET, aimed at developing practical know-how, and the classroom-based elements, which provide the theoretical underpinning. In the *German* dual systems of apprenticeship, this distinction is made explicit. Thus, on the construction site and in inter-company training centres occupational knowledge and skills are (for all construction profiles):

- assignment acceptance, ascertaining accomplishment, work plan and work flow;
- setting up, securing, clearing of construction sites; checking, storing, selecting material;
- reading and applying of engineering drawings, drawing up sketches;
- conducting measurements; quality assurance and reporting system.

These contents are imparted jointly with the knowledge, know-how and competences related to one of the three areas (buildings, civil engineering, finishing). During the first year VET in all three areas includes the making of construction components with wood, with concrete, with stones/bricks. Area (building construction) and occupation-specific activities include:

- insulation, plaster works, building pavements, tiling, building dry mortarless constructions (these are in common with the area 'finishing'); and
- setting up building pits and ditches, building roads, water supply and sewerage (these are in common with the area 'civil and underground engineering').

VET at the vocational schools is organised not by subjects but by learning fields. These are: establishing a construction site, foundations, single-leaf construction pieces, steel concrete pieces, wood constructions, surface treatment of construction pieces, single-leaf walls, multi-leaf walls, massive ceilings, plastering, mortarless walls, straight stair cases, pavements, arches, natural stone walls, special construction parts, restoration.

Overall, work-based VET routes into bricklaying predominate in most countries studied, although the vocational school is the most common pathway in Poland. In England, the increasing numbers of bricklaying trainees following the college route as a result of diminishing training places with employers is problematic, as it impedes the young people's transition into employment. In most continental countries (Germany, Poland, Denmark, Netherlands, France, Belgium), VET constitutes the continuation of general education through the occupation. Programmes aim to develop the person as an active citizen in wider society as well as for the occupation and cover a broad knowledge and skill base which enables learners to work in a variety of functions and areas of construction. The notion of competence as the integration of theoretical knowledge, practical know-how and social and personal competences is central to VET in these countries. Bricklayers have an understanding of the labour process as a whole and their position within it, are able to exercise professional judgment, and work independently and in co-operation with others. In Italy, while the training at national level is comprehensive both in terms of knowledge and skills it provides, it is of little or no relevance to training provision in the regions. By contrast, VET in England is oriented towards the demands of employers. It comprises a narrow range of activities and knowledge which, until recently at least, has been restricted to the performance of narrowly prescribed tasks. It lacks any meaningful element of general and civic education and thus a notion of personal development.

While the VET systems in most continental countries are based on inputs of comprehensive curricula or learning programme, those in England, France and the Netherlands have been reformed to become competence-based so as to more closely reflect the needs of the labour market. Qualifications are defined in terms of sets of activities, which then relate to competences and the knowledge and skills deemed necessary for the performance of these competences. However, VET in the two latter countries encompasses a broader range of activities and is based on a multi-dimensional concept of competence.

5. What is the status of bricklaying in the occupation/ the sector/ society?

In Denmark, Belgium, and Poland, where brick continues to be widely used in house-building, bricklaying enjoys a high status as an occupation within the sector. This is reflected in the strong popularity of the occupation of bricklaying amongst young people, with continuously high levels of trainees, though this popularity may also be due to a well-respected system of training. While in Poland, bricklaying is the most important occupation in the sector, in Denmark it is of less importance than occupations such as carpentry.

In other countries, as reflected in significant labour shortages, the status of bricklaying is not as high, perhaps attributable to lower wages and working conditions (Netherlands, England, and Italy). This is particularly the case in Italy and in England, where the sector is rife with casual and irregular employment, including 'bogus self-employment' and characterised by an often poor health and safety record. In France and England, although the number of applicants by far exceeds the number of available training places, VET in bricklaying can be a route for academically low-achieving students and be marked by high dropout rates. By contrast, in the Netherlands and Germany there is a decreasing number of bricklaying trainees. In Germany, for example, the number of apprentices has dropped dramatically from 31,024 in 1999 to 11,176 in 2007. In these two countries, the average age of bricklayers has been increasing and there is a high labour turnover amongst younger workers. Labour shortages have led to the large-scale employment of migrant labour, notably in England and Italy, but also in Germany.

5.1. What is the value of qualifications/ skills in the labour market?

In most countries in the study nationally recognised bricklaying qualifications have a strong currency in that they are an important precondition for labour market entry. In most cases, this is because the qualification is a guarantor that the person has completed a comprehensive and nationally recognised VET programme.

An important distinction is between countries with occupational labour markets and those relying on internal or purely external labour markets. An occupational labour market is one where transferability between firms and jobs relies on clearly recognised occupational qualifications acquired through the VET system. In contrast, internal labour markets rely more on internal social networks and predictable stable job structures than on formal VET programmes. Belgium, Germany, the Netherlands, Poland and Denmark fall within the former group, where qualifications are critical for labour market entry and bricklayers generally do hold the qualification. Indeed, in the Netherlands the VET diploma gained on completion of the programme is the only route into skilled employment. In the other countries, while the qualification is strongly valued in the labour market, it may not necessarily constitute the sole route into the labour market. In Germany, the proportion of bricklayers with the qualification *Maurer* has been steadily decreasing (from 84.8% in 1999 to 82% in 2005). In Belgium, the labour shortage has led firms to employ unqualified workers who then receive training, either on the job or as short courses in training centres. France on the other hand is an example of a labour market, which is both internal and occupational. While qualifications have a strong currency for labour market entry, there is only a loose relationship between the qualification and the occupation of bricklayer or *maçon*. Indeed, bricklayers are employed and can progress on the basis of their qualifications or their work experience.

In contrast, in England and Italy the currency of bricklaying qualifications is low so that there is no effective occupational labour market and at the same time 'firm internal markets' in the classic sense are no longer prevalent for bricklayers. Firms or subcontractors remain largely organized on a trade basis, taking on contracts for bricklaying work on different sites and from different main contractors and resourcing each new contract so that levels of labour turnover are high. In these countries, what is valued above qualifications on the labour market

are skills and experience. In Italy, VET plays a limited role and no formal qualifications are necessary to enter the labour market. In England, entry to the labour market is not dependent on the completion of a regulated VET programme. Rather, employment is contingent on the certification of existing skills and thus experience. The CSCS (Construction Skills Certification Scheme) card, which is issued on the satisfying performance of skills, as recognised through the possession of a NVQ, which may commonly be obtained through on-site assessment, serves as a licence to practise. There is also a high proportion of labourers (or unskilled workers), often migrants, who acquire a CSCS card on completion of a health and safety test. In many respects, with the narrowing down of bricklaying skills, these labour markets have come to conform more closely to 'secondary labour markets' arising when skills are depleted and institutional regulation and VET are weak and depending on external recruitment markets. They differ from both internal and occupational markets in the lack of stability of employment, the exercise of managerial prerogative, low levels of training and low qualification levels. The trade labour markets for bricklayers in England and Italy thus compare with the more recognisably 'occupational' labour markets associated with the more developed construction labour processes found in countries such as Germany.

5.2 What is the scope of activities bricklayers are expected to carry out?

A key difficulty in comparing bricklaying qualifications, and thus in implementing the EQF, arises from the variation in the scope of activities bricklayers are expected to carry out in the workplace. The activities for each country are set out in Table 5. In countries where qualifications are awarded on completion of comprehensive programmes, their strong currency is attributable to the occupational capacity they represent. This is the case in Denmark, Germany, France, Belgium, Poland, and, to a slightly lesser extent, in the Netherlands. In these countries, bricklayers are employed for their ability to work across a wide range of functions. There is generally a higher degree of specialisation in large enterprises than in smaller firms. However, the vast majority of bricklayers in these countries are employed by SMEs. It is in these firms where bricklayers are required to be polyvalent, commonly including activities of related occupations, such as plastering or even carpentry. Bricklayers are expected to build a house from the foundations to the roof, with a high level of autonomy and an understanding of the entire labour process, the wider industry, and their position within it. The occupational capacity of bricklayers integrates the manual and the intellectual tasks. It is based on a multi-dimensional concept of competence, which requires bricklayers to draw on and integrate a range of resources of different types of knowledge, practical know-how, and social and personal competences to deal with complex situations in the workplace.

Thus, in all these countries, there is concern with the ability to plan, carry out and evaluate the work, based on professional judgment and responsible decision-making in co-operation with other occupations in the construction labour process. Bricklayers are expected to carry out a broad scope of activities, using a variety of materials (bricks, concrete, reinforced concrete, and prefabricated elements) and tools, and working within a range of construction areas: new build, urban regeneration, restoration, and repair and maintenance.

Table 5: The scope of activities of bricklayers in eight countries

Country	Sub-sectors	Manual	Non-manual
Denmark	New buildings Urban regeneration Restoration Repair/maintenance Large-scale construction (pre-fabricated material)	Laying bricks and blocks Flooring Tiling Roofing Jointing Rendering Façade cladding Scaffolding Fitting insulation Carpentry	Planning work Quality control Communicating with customers Applying health and safety measures Working from technical drawings Collaborating with other actors on site/ in the industry
Belgium	House-building Commercial building Restoration Repair/maintenance	Constructions using brick, block, stone and concrete Plastering Connecting plumbing & sewage systems Form setting Tiling Scaffolding Jointing Gluing Façade Fitting insulation Woodworking Driving	Planning the work, including ordering materials, assessing suitability of materials, working from technical drawings, contacting suppliers Applying and monitoring health and safety measures Quality control, including observing deadlines, transmitting customer requests, dealing with work permits, Communicating with customers, contractors and co-workers
Poland	House-building Commercial building Restoration Repair/maintenance	Bricklaying Plastering Finishing Flooring, Tiling Stonemasonry, Concreting, Steel fitting Carpentry, Formwork Surveying Bonding Making drains and lintels Fitting insulation Mounting door and window frames Cladding	Planning the work, including assessing suitability of materials, setting out Applying and monitoring health and safety measures Quality control Communicating with co-workers, and customers and contractors (level 3) Training co-workers (level 3)
Germany	House-building Commercial building Restoration Repair/maintenance	Constructions using brick, block, stone and concrete Plastering Finishing Formwork Fitting insulation Scaffolding Also: Civil engineering	Planning work Quality control Communicating with customers Taking on contracts and delivering the work Setting out Assessing and selecting materials Reading and preparing technical drawings Measuring Applying health and safety measures Working from technical drawings Collaborating with other actors on site/ in industry
France	House-building Commercial building Restoration Repair/maintenance	Constructions using brick, block, stone, concrete, and pre-fabricated material Rendering Scaffolding Formwork Concreting Installing piping	Planning the work, including ensuring availability of materials, contacting suppliers, surveying and setting out, preparing and reading from technical drawings Applying and monitoring health and safety measures Quality control Dealing with site waste Communicating with customers, contractors and co-workers
Netherlands	House-building Commercial building Repair/maintenance Restoration - specialist qualification Level 3	Constructions using brick, block, stone, concrete Joining Fitting insulation Gluing Concreting (specialist qualification – rebuilding Level 3)	Planning and preparing the work, including working from technical drawings Applying and monitoring health and safety measures Communicating and co-operating with co-workers At level 3: Instructing gang members Quality control Consulting with third parties Monitoring progress Reporting to firm management
Italy		According to the collective agreement at level III: Bricklaying (pillars, columns, arches, masonry, special coatings, parapets, barrel vaults, cross caps, cupola vaults, gothic vaults, stairways, stone arch faces, marble, tiles)	Unclear
England	House-building Commercial building Restoration Repair/maintenance	Constructions using brick and blocks Moving and handling resources	Setting out Working from technical drawings Selecting materials, components and equipment Applying health and safety measures Conforming to efficient work practices Communicating with co-workers

The breadth of the occupation is particularly pronounced in France and Poland, where bricklaying does not exist as an occupation in itself but constitutes only one element of a much broader one, that of mason, who is expected to build a house from the foundations to the roof, in collaboration with other occupations. This includes preparing, monitoring and delivering the work (working from technical drawings; determining the suitability of and selecting materials; applying health and safety regulations; setting out; communicating with clients and different levels of the work hierarchy). In Poland as in France the mason has no clear occupational boundaries and activities may include stone masonry, plastering, finishing, concreting, steel fitting, formwork and mounting door and window frames.

While more clearly focused on bricklaying, the occupation is also very broadly defined in Germany, Denmark and Belgium. For example, in Denmark, the activities include bricklaying, flooring and tiling, roofing, jointing and rendering, façade cladding, and scaffolding. Specialisation is possible in restoration (usually for employment in larger firms). In Belgium, bricklayers are expected to erect walls using a variety of materials (brick, block and stone), lay foundations, and connect plumbing and sewage systems. Activities may also include scaffolding and insulation. The non-manual tasks include planning (planning and organising the work; ordering materials; communication with suppliers); putting in place measures for and monitoring health and safety; and ensuring the quality of the work (observing deadlines; issuing work permits; communicating with clients, customers and colleagues). In Germany, bricklayers have a sound knowledge of related occupations, such as carpentry and civil engineering, which are covered in their first year of the apprenticeship. In the workplace, they operate with a high level of autonomy, planning, co-ordinating, monitoring and handing over the completed work.

The scope of activities is somewhat narrower in the Netherlands, where bricklayers typically hold level 2 qualifications. It is largely restricted to brickwork, although it does include fitting insulation material and gluing. Nevertheless, as in the other countries, bricklayers work in relation to the whole labour process and activities include preparing and evaluating the work, although they usually have no contact with clients. There is an increasing extent of specialisation, with concreting as well as restoration constituting specialist qualifications.

The broad scope of what could be termed the ‘occupational’ model contrasts with the narrowness of activities in England. This is particularly the case in the house-building sector, where bricklaying is largely confined to laying bricks and blocks. In commercial activities, bricklayers may be required to carry out a wider range of tasks, including working with stone and concrete, erecting arches, and using sophisticated bonds. A high level of specialisation of skills is required by large companies, which commonly employ labour-only subcontractors. Specialisation is also more pronounced in times of economic boom. During a recession, employers may require bricklayers who are able to work at a more universal level. In England, there is typically a separation between the manual and the intellectual functions, with activities such as setting out, reading drawings, planning, monitoring and delivering the work perhaps carried out by site managers, site engineers or supervisors. In Italy, the scope of activities of bricklayers varies greatly both by region and by individual firm. According to the collective agreement, it is focused on constructions using a large variety of materials, including stone and marble.

5.3 What is the basis of the wage and employment conditions?

In countries where bricklaying VET and qualifications provide the dominant entry route to the labour market, there is some link between qualifications and pay, usually through the collective agreement. However, in most cases the actual wage is determined by performance.

For example, in Denmark, the collective agreement stipulates the minimum wage for qualified bricklayers. In practice, bricklayers are paid by the hour (in the craft sector) or on the basis of the *Akkord* system, a form of piecework combined with a basic wage agreed by the social partners and peculiar to the construction industry. In Germany, Belgium, and Poland, qualifications are linked to wage grades. In Poland these are company based. In France, they are a kind of 'implicit' reference; collective agreements define the basic wage but the actual pay may depend on the bargaining power of the individual employee.

In the Netherlands, wages are not strictly linked to qualifications, i.e. holders of qualifications are not automatically entitled to a particular wage grade. However, the collective agreement contains a wage structure for young people who have come through the work-based VET track. This was introduced so as to attract more young people to the industry and to boost completion rates. For other workers, other aspects are taken into consideration in wage negotiations, notably the level of work experience, age and the extent of labour shortages.

In England, the collective agreement does not formally recognise skills or qualifications, but contains the traditional distinction between traditional craftsman and operative, with skilled rates based on tasks carried out in between these. The apprentice rate, only re-introduced in 2002, is very low, though increasing. On the other hand, the requirement to have a CSCS card has enforced a link between skills and pay, with different colour cards relating to differing levels of skill (NVQs). However, in practice bricklayers in the private sector are paid on day rates related to a negotiated price and thus to output. In the public sector in contrast, such as in the local authorities, bricklayers will be on an hourly rate related to the collectively agreed rate. In Italy too pay is not linked to skills or qualifications, although the collective agreement contains a minimum wage. Beyond that, bricklayers are paid according to the jobs or tasks at hand. However, workers are covered by a Special Construction Workers' Fund, which supplements social security benefits, addressing the problem of insufficient contributions by many workers.

In summary, the eight countries vary in the extent to which recognised qualifications based on comprehensive VET programmes are a prerequisite for labour market entry. In Belgium, Germany, the Netherlands, Poland, Denmark and, to a lesser extent, France, they are important if not critical and provide a degree of occupational mobility. This is based on the occupational capacity provided by regulated VET programmes as bricklayers are able to work across a wide range of functions and across firms and sub-sectors of construction in what remain occupational labour markets. By contrast, in England and Italy, skills and experience are commonly valued above qualifications gained through comprehensive training. Importance is placed on the performance of skills. In these countries, the scope of activities is generally narrow and contingent on the demands of individual employers, although in Italy, in the absence of national regulation, there is considerable regional variation. In England, the certification of skills through on-site assessment constitutes a licence to practice. In this country, a deregulated labour market and weak training system has led to large-scale contracting out, irregular forms of employment and high levels of specialisation.

6. Questions and considerations raised

The EQF is sufficiently flexible for all the Bricklaying VET systems in the project to be described within it, although the 'Competence' column in the grid does cause problems, which will be discussed below. However, although there are significant similarities between the qualifications of some countries, *overall* there is considerable variation amongst the eight countries examined: Belgium, Denmark, England, France, Germany, Italy, the Netherlands, and Poland. This means that, although it should be possible to construct a framework to compare bricklaying qualifications across the countries concerned, based on the EQF, it is not

also possible to set out the elements for a common bricklaying qualification acceptable to all the countries in the study, let alone to all the member states. The aim of this section will, therefore, be to indicate similarities and differences between qualifications in each country, as a basis for setting out a common framework. The four dimensions of comparison are: Scope, Knowledge, Skill and Competence.

6.1 Scope

The first dimension of variation concerns the breadth or scope of activities encompassed in the bricklaying qualification, something not explicitly addressed within the EQF framework though the original intention was that it should (see Table 6). Scope of operations in turn affects two of the three dimensions of the framework. In one group of countries - Germany, Denmark, Belgium, the Netherlands, Poland and France- the full bricklayer qualification is at least at the English equivalent of an NVQ Level 3 and covers a wide scope of operations. Though there is an NVQ Level 3 bricklaying qualification in England, the main and typical bricklaying qualification is – as also in Italy - at the equivalent of an NVQ level 2. Compared to Level 3, Level 2 covers a restricted range of activities, contains a more limited knowledge element, and assumes that the person is supervised and has significantly less responsibilities and autonomy.

Table 6: Scope of Activities in Bricklaying Qualifications and VET

	Denmark	Belgium	Germany	Netherlands	Poland	France	England	Italy
Brickwork & Masonry	√	√	√	√	√ including specialist masonry work	√	√	√ including specialist brickwork
Concrete	√	√	√	√	√	√		
Basements, Ducts		√	√		√	√		
Scaffolding	√	√	√		√	√		
Foundations		√			√	√		
Facades	√	√	√		√	√		
Plastering	√	√	√		√	√		
Roofing	√				√			
Structures	√		√		√	√		
Carpentry	√	√			√			
Insulation	√	√	√	√	√	√		
Gluing	√	√		√		√		
Jointing	√	√		√		√		
Formwork		√	√			√		
Surveying			√		√			
Flooring, tiling	√	√			√			

For all countries except England and Italy the full qualification is obtained after a minimum three years of VET and in some cases longer, as in Denmark where it is up to three and a half or even four years. In England the normal length of VET is two years. Germany has a two-

year adult route as well as the dominant three-year route in which the first year is composed of APEL, with two further years VET.

The implications of this are significant, particularly with respect to the knowledge element of the grid. Thus, if a bricklaying qualification covers, for example, **being able to** lay bricks and do furnace and chimney work (as in the case, for example of Germany), then **knowledge** of the materials and principles underlying both furnace and chimney work and bricklaying will be required. Likewise, a bricklaying qualification encompassing bricklaying and furnace and chimney work will also include a **broader range of know-how** than one confined to the activity of laying bricks. The multivalent bricklayer qualification assumes more competence in making judgments, exercising initiative and working with other occupational teams. However, this capacity for multivalency is independent of any supervisory element, which is the principal concern of the third column of the EQF framework grid.

6.2 Knowledge

Knowledge underpins know-how and is usually presupposed in the bricklaying qualification. The term ‘knowledge’ is itself ambiguous between systematic knowledge, conceptual grasp and knowledge of particular and local conditions (see Table 7). This contrast is made explicitly in Denmark, while in Belgium the knowledge to be applied is considered to be theoretical as well as local and particular. In England on the other hand, a minimum of particular and local knowledge is required in the NVQ level 2 qualification, while the newly introduced ‘Diploma + NVQ’ model builds in more theoretical knowledge to provide a potentially more integrated qualification.

Table 7: Comparison of the Countries on the Grid.

	Knowledge	Skill	Degree of Self management	Personal and Civic Education
Denmark	Local, theoretical, particular, systematic and conceptual	Integrated with theoretical knowledge	High	High
Belgium	Local, theoretical, particular, systematic and conceptual	Integrated with theoretical knowledge	High	High
Germany	Local, theoretical, particular, systematic and conceptual I	Integrated with theoretical knowledge	High	High
Netherlands	Local, theoretical, particular, systematic and conceptual	Integrated with theoretical knowledge	Moderate	Moderate
Poland	Local, theoretical, particular, systematic and conceptual	Integrated with theoretical knowledge	High/Moderate	High/Moderate
France	Local, theoretical, particular, systematic and conceptual	Integrated with theoretical knowledge	High	High
England	Local, particular and limited theoretical	Sometimes integrated	Low	Minimal
Italy	Local and particular	Not integrated	Low	Minimal

6.3 Skill

The column translated as ‘Skill’ in the English version of EQF would be better translated as ‘Know How’ to reflect the fact that the English term ‘skill’ is, in some important respects, not a good translation for the practical aspect of knowing as it is expressed in other European languages. Common to bricklaying descriptors in all countries is the enumeration of the different kinds of tasks that bricklayers are expected to undertake and these are, in all

frameworks, set out in great detail. But beyond that common point, there are problems of interpretation. These can be set out under two headings:

Integration: In many qualifications, particularly those at the equivalent of NVQ Level 3, it is assumed that the know-how employed in bricklaying tasks is informed not only by knowledge of particular site conditions, machinery, firm-specific regulations and procedures etc. but also by systematic knowledge relating to the successful performance of those tasks, such as knowledge of the properties of materials and structures. However, the bare specification of such know-how in a trans-European framework will not bring this out in the detail that is evident in particular national qualifications. There is, then, a serious danger of ambiguity in relation to the integrative nature of skills specified. Some qualifications may require integration, whilst for others this is not a requirement.

Transversality: In the qualification systems of all the countries in the study with the exception of the lower level qualifications in England and Italy, it is expected, not only that sequences of tasks be integrated into a coherent set of actions, but that these be done with a considerable degree of personal judgment, which includes planning, control, decision-making, co-ordination and evaluation not only of various aspects of the operation, but also of the larger operation of which they are a part. It is assumed that bricklayers have some role in planning activities and controlling their own work to different degrees. In Belgium, France, Germany, Denmark, the Netherlands and Poland, a considerable degree of co-ordination with related occupations is also assumed. Although important aspects of this kind of know-how are involved in the concept of 'competence', the competence column of the EQF relates more to managerial responsibility, whereas the idea of taking responsibility for one's actions impacts directly on the way in which skills are deployed in the workplace. The idea of 'skills' or, in the German translation, '*Fertigkeiten*' also inadequately encompasses this kind of coordination, though the transversal abilities involved are of central importance to many of the bricklaying qualifications involved in this study. The Dutch bricklaying qualification, for example, includes the ability to make quite complex choices concerning how to proceed in a workplace environment.

6.4 Competence

Translated in English as 'Autonomy and Responsibility' within the EQF framework, there are tensions between this column of the framework and, in particular, the 'Know-How' or 'Skill' column. The EQF descriptors relating to autonomy and responsibility refer primarily to the management of other people, for individuals in a position of managerial responsibility for controlling and directing the work of colleagues with lower levels of autonomy and responsibility (see Table 1). While this is an important aspect of the division of labour in the industry, it obscures the fact that the balance between management and self-management is resolved in different ways within different national qualifications systems and labour markets, and that there are flatter management structures in some countries than in others. For the framework to be coherent there needs to be a match between the self-management responsibilities, best described as an aspect of know-how, and the structural management responsibilities set out in the 'Competence' column. Confusion of these two issues could make meaningful cross-national comparison difficult.

6.5 Cumulation and learning outcomes

EQF assumes a strong interpretation of the concept of a learning outcome, which is that it is a descriptor of what a person knows or can do *irrespective* of any prior learning. Knowledge, skill and competence can, it is supposed, be assessed without reference to any prior relevant curricular or pedagogical experience that the candidate may have had. While this corresponds to the English concept of a learning outcome as it is used in the NVQ and Apprenticeship

frameworks, it does not correspond to the concept of a learning outcome, which is used in many other European countries within the project where it refers to the standard that is reached as a result of following a curriculum. While this 'weaker' conception of a learning outcome often also relates the outcome to the ability to carry out specific tasks to be assessed in a practical environment, the successful achievement of the learning outcome tends to be contingent on the successful completion of a structured VET programme. By its nature, a transnational comparative framework cannot specify each national bricklaying curriculum but nor can it assume that learning outcomes are necessarily detached from their underpinning educational and training processes. The danger is that learning outcomes are simply understood and interpreted in different ways in each country. In fact, this strong interpretation of a learning outcome can only be found within the English NVQ (which is a component of the Apprenticeship Framework but is not in other English qualifications such as the BTEC Diplomas) and in the EQF itself. In the other countries in the study, learning outcomes are generally to be interpreted as standards or waypoints of achievement resulting from following a curriculum. The Netherlands lies somewhere in between, in assuming some equivalence between experience and learning, particularly in its Accreditation of Prior Learning (APL) procedures, but ensuring sufficiently elaborate assessment procedures to allow for the demonstration not only of skill but also of the knowledge and 'soft skill' element of a competence. In this respect, much hinges on the process of assessment.

One important reason for concern is the issue of the cumulative nature of qualifications. In most cases it is assumed that achievement at one level of a qualification system is a necessary condition for movement to the next level higher in the qualification system. There are exceptions where, for example, APL (Accredited Prior Learning) considerations apply, as they do in some countries, which operate modular systems. Thus a candidate in a programme in Occupation A may transfer credits to a programme concerned with Occupation B, because they are sufficiently relevant to Occupation B. But even here, assessment of APL is usually based on the candidate having successfully completed a course of study prior to the assessment. EQF, however, is intended to accommodate not only APL but also APEL as evidenced in possibly a one-off *in situ* demonstration that apparently satisfies the learning outcome descriptors. In order to do this successfully, it is not considered necessary for the candidate to have successfully completed a cumulative programme of study, just to have demonstrated on one occasion that they have satisfied the descriptors. How this is done varies from country to country and sector to sector. One way of doing so is to check whether an individual can carry out a range of tasks set out in the qualification. This is largely the case with the English NVQ. On the other hand, an APEL procedure may test the underpinning knowledge needed for an occupation by means of some kind of test or examination, or, alternatively, the production of a portfolio by the candidate. Once APEL has been recognised and, for example, credit points and certification have been awarded, the APEL recognition can then be 'banked' as a contribution to a further qualification (for instance, within a modular scheme), through an APL procedure.

In some countries however the assessment of APEL is quite systematic and rigorous and requires the presentation of a range of evidence, to be judged by a panel of experts, as is the case in France. Germany also has an APEL route for its two year VET bricklaying qualification, which is designed for older workers. It is likely, therefore, that those countries that conceive of learning outcomes as being internally related to programmes of prior study will interpret 'learning outcomes' in their sense. The British report reveals in contrast that, even within the bricklaying NVQ, there is a repetition at higher levels of some descriptors that have occurred at a lower level. This suggests that it is difficult to practically use learning outcomes in the strong sense without modifying them to assume some degree of cumulation,

since some skill and knowledge presupposes that the candidate has already acquired other skill and knowledge.

6.6 Acting on your own initiative

A feature of some of the curricula in the project is the extent to which in many countries the emphasis is on bricklayer trainees learning to act on their own initiative, whether as a member of a team or not. This is particularly striking in the Netherlands where the bricklayer trainee is not only required to work in co-operation with colleagues, but has to learn how to make critical choices. In France, the development of *savoir être*, which concerns the way in which he or she conducts himself, is a core aim of VET. The various *Kompetenzen* (personal, social, method and technical) outlined in the German system also presuppose that such abilities are developed. Planning, evaluating, controlling, co-ordinating are all attributes that the bricklayer is expected to develop to some degree in the Netherlands, Germany, Denmark, Belgium, Poland and France. In England, the main personal attribute for a level 2 bricklayer qualification (the main level) is that the person is expected to be able to work to instructions and to report problems. This is less than the decision-making and co-ordinating abilities required in the Level 3 equivalent qualifications in other countries, with the exception of Italy. There is, then, quite a wide variation in the degree of independence and initiative that is expected to be achieved, a variation that is in part attributable to differences in levels. The suggestion is that self-management needs to be considered an aspect of know-how within the bricklaying qualification and that therefore any comparison framework be structured (possibly with two columns for know-how) to accommodate this.

6.7 Scope of operations

Should a bricklaying qualification cover the broad scope of activities involved in being able to build a house or just revolve around laying a wall of bricks? These are the stark alternatives that constitute the extremes of the overall occupational capacity embedded in a bricklaying qualification. There is considerable variation in the scope of the bricklaying qualification of different countries. A high degree of specialisation is assumed in Britain and Italy, combined with a relatively limited range of know-how, while in France, for example, the *Macon* qualification assumes a wide range of operations, as is also the case in Belgium, Poland and Denmark. Denmark is rather typical of a country where the bricklaying qualification assumes the ability to carry out a wide range of activities in addition to laying bricks, including scaffolding, roofing, plastering and flooring, not to mention renovation and repair. The VET programme associated with this is also at least three years in duration and for some routes up to four years. In contrast, the lower level intermediate Danish qualification of tile installer is narrow in scope and does not have a significant take up. In England too the NVQ level 2, which can be completed in two years, requires the bricklaying trainee to be able to set out and erect masonry structures and to complete one other option, which can include: cladding, domestic drainage, non-specialist concrete work, plastering and rendering and roof maintenance. Generally speaking, the longer study periods needed for the higher levels of bricklaying qualification are positively associated with the development of a wider operational scope for the bricklayer (see Table 3).

6.8 Personal and civic education

France, Germany, the Netherlands, Belgium, Poland and Denmark all attach importance to the continuation of the personal and civic education of VET bricklaying students. In Denmark, the VET programme includes a period of personal study agreed on in consultation with the student. Among the broader programmes, Denmark and the Netherlands are good examples, with the Danish basic programme including mathematics, social science and innovation and entrepreneurship and the Dutch citizenship and learning competences. Germany insists on the inclusion of Social and Personal Competences while the French programmes also state

explicitly that personal and civic development are among the aims. Poland covers basic features of a market economy, ethics, and decision-making abilities. Belgium has a more limited set of outcomes that include autonomy and a sense of aesthetics. These features are not so evident in Britain and Italy, which adopt a more utilitarian approach based on developing the ability to perform a range of specific tasks.

7. Conclusions

In attempting to align bricklaying qualifications with the EQF, a number of important differences in bricklaying across Europe need to be considered. The first is the different level of qualification, with the typically NVQ Level 2 qualification in England and an equivalent level in the Netherlands and Italy being much narrower in scope and lacking the underpinning knowledge found in the equivalent of Level 3 or above of the German, Danish and Belgian qualification. Such difference in scope and depth in part relates to the different nature of the bricklayer and the labour market in which s/he operates, as well as the system of regulation governing both the VET system and recognition of the qualification. At one extreme, bricklaying remains a trade, with the bricklayer rewarded for a particular output and largely restricted to laying bricks with little concern for his/her potential and social and personal development over a working life. At the other, bricklaying is an occupation, with the bricklayer valued for his/her often broad and social qualities as well as potential ability, both assumed to be embodied in the qualification which acts as a key means of entry into the labour market. This latter type of bricklayer therefore depends on an occupational labour market, which contrasts with the secondary labour market on which the more narrowly trained bricklayer depends.



Education and Culture DG

Lifelong Learning Programme

**Leonardo Da Vinci Project
„Bricklayer“**