



Lifelong Learning Programme

Leonardo Da Vinci Project „Bricklayer“

TRANS-NATIONAL SYNTHESIS OF BRICKLAYING QUALIFICATIONS

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1. Introduction

This report presents recommendations for the development of a common framework for comparison of bricklaying qualifications within the European Qualifications Framework. It is based on national reports on bricklaying in Belgium, Denmark, England, France, Germany, Italy, the Netherlands, and Poland and includes an evaluation of ways of aligning the knowledge, skills and competence components of bricklaying qualifications with the EQF, Sectoral Frameworks and, where possible, National Qualification Frameworks (NQFs). Key points concerning bricklaying qualifications in the eight countries are first summarised before discussion of the structure and aims of EQF. The ways in which each country is developing a NQF are described and the proposed Construction Sectoral Qualifications Framework (SQF) and its relevance to the comparison of bricklaying qualifications examined. Finally, issues concerned with the comparison and acceptance of qualifications across national boundaries are considered, including the possibility of establishing Zones of Mutual Trust (ZMTs) in the light of similarities and differences in the qualifications in the eight countries.

The report should be read against the background of the prospects for the European construction industry over the next ten years. Broadly speaking, employment in the sector is forecast to remain relatively stable, though it is more difficult to predict the ability levels required, not least because qualifications are often used (as in the CEDEFOP Report (2010: 54) and in EU 2010a) as a proxy for know-how (or ‘skill’ in the usual, somewhat misleading, terminology). This is a problem because the qualification stock may increase independently of any movement in the demand for know-how. Another problem relates to the policy thrust within the European Union (EU) to promote the accreditation of prior experiential learning (APEL) (EU 2010b, c); it is difficult to characterise occupational know-how in terms of qualifications if, at the same time, qualifications are awarded for experientially acquired know-how. The report ‘Future Qualifications and Skills Needs in the Construction Sector’

provides, however, an important clue to the nature of future demand in claiming that there will be an increasing need for: planning and management skills; ‘increased self-management involving self-governing teams of workers with greater autonomy in the implementation of tasks’ and co-operation with others to achieve goals (DTI 2008: 23).

Bricklaying qualifications in the eight countries studied show considerable variation. EQF classifies all qualifications in terms of Knowledge, Skills (or, more broadly, know-how) and Autonomy/Responsibility. This framework needs to be adapted to the sectoral and occupational levels in order to make sense of bricklaying qualifications, to provide a way of comparing them across countries, and, in particular, to allow for of the possibility of accreditation, not only of qualifications, but of experience acquired in a relevant field (EU 2010b).

Comparison of bricklaying qualifications in the eight countries in terms of the activities covered, both manual and non-manual, reveals the range of construction activities catered for by each national qualification, the type of skill-based activities undertaken, transversal second order abilities such as planning and communication, and last, but not least, the project management abilities requiredⁱ. Activities such as planning, co-ordinating and evaluating manifest themselves in different ways and cannot be identified with any one particular task (Ryle 1979). They are important for understanding the degree to which bricklayers can work independently and therefore for the degree of supervision that they require at work. Table 1 illustrates the situation by mapping the scope of activities of bricklayers in the labour market. The work carried out by CEDEFOP (2010: 14) too predicts an increasing emphasis on transversal abilities (such as planning, communication and coordination) between 2010 and 2020.

Table 1: 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, Reading and preparing 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 Carpentry Surveying Bonding Making drains and lintels Formwork Fitting insulation	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)

		Cladding	
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	House building, maintenance and restoration, Civil engineering,	Bricklaying (pillars, columns, arches, masonry, special coatings, parapets, barrel vaults, cross caps, cupola vaults, gothic vaults, stairways, stone arch faces, marble, tiles), installation of window sills and jambs, installation of banisters, railings and parapets, both masonry and iron made	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

In terms of subsectors covered there are strong similarities between the countries, with bricklayers in most countries covering a broad range. In terms of non-manual activities there is also considerable correspondence, with the notable exceptions of England and Italy (where the situation is unclear). For types of knowledge required, however, the picture is more complex (Table 2):

- With the exceptions of England and Italy, there are elements of non-remedial general education in all the qualifications.
- Denmark is the only country that includes a significant amount of industrial knowledge, most countries confining themselves to little more than relevant health and safety and legal information about the industry.
- Occupational knowledge is significant (but with national variations) in all countries except England, Italy and the Netherlands, with evidence of a narrowing of the formal curriculum for bricklaying in the case of England.

Table 2: 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: Basic ICT Maths Polish Technical drawing	Labour law Health and safety Materials Entrepreneurship	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, Italian and Community regulations, ICT	Health and Safety	Varies by region

In terms of the governance of bricklaying qualifications (Table 3), salient similarities and differences relevant to the construction of a common framework include:

- The presence of social partnership arrangements in all countries except England and Poland.
- State and levy funding in all countries.
- Occupational labour markets in all countries except England and Italy and, to some extent in France and the Netherlands.

Table 3: Structures of Governance of Qualifications

	Social partner/ employer regulation	Funding mechanisms	Central/ regional	Responsibility for defining qualification	Training (OLM) vs production (ILM) model	Handwerk vs 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 apprentice-ships	ILM	Yes + coops and SMEs	General approach, minimal

Country by country the situation for vocational education and training (VET) provision can be summarised as follows:

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 provision. The curriculum is very broadly based and includes a significant educational element. 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**, VET in bricklaying is part of a comprehensive vocational school system. VET qualifications can be obtained both through the school based or dual tracks, the latter being work-based with a college and workshop element. Bricklaying is largely practice-based, and the duration for the more common Dutch NQF Level 2 qualification is 2 years.

In **France**, the most common route, the CAP (*Certificat d'Aptitude Professionnel*), is integrated within the education system, taking 2-3 years to complete, with apprenticeship the dominant route, (where 75% of the programme is based with a specific employer and 25% in a training centre). It is situated at Level 3 in the French NQF.

The **German** qualification takes 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 bricklayer qualification 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), which is the work-based element, and the Construction Diploma (the technical and theoretical element) and so-called ‘functional skills’. These elements are narrow in scope with little integration between them. VET in bricklaying is increasingly college-based, with trainees following courses to achieve Diplomas. Construction VET courses are characterised by a strong demarcation between different construction trades with no common basis. The dominant bricklaying qualification is at English NVQ Level 2.

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 those aged 18 to 19). However, in the context of the 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.

2. Crossnational summary of Bricklaying VET: Three Generic Cases

From our eight countries, it is possible to discern three predominant models of VET associated with different bricklaying qualifications and variously reflecting distinctions between: trade and occupation; narrow and broad range of activities; and work-based and school-based elements (see Table 4). Despite these variations, labour mobility in the construction sector across Europe suggests some local knowledge of the different nature of qualifications held by prospective employees, as well as accumulated experience of many bricklayers for which, as yet, limited formal accreditation is available.

Table 4: Comparison of Bricklaying VET at a glance

	Broad Brick Curriculum	General and Civic Education	Project Management Capacity	School based	Dual Apprenticeship	Traditional Apprenticeship (time-served)	Social Partnership
Belgium G3	√	√	√	√	√		√
Denmark G3	√	√	√	minimal	√	(Minor route)	√
England G1				dominant	Minor route with limited educational element	Minor route	
France G3	√	√	√	Minor route	√		√

Germany G3	√	√	√	Minor route	√		√
Italy G1	Regional variation					Dominant route	
Netherlands G3		√	√ but at level 3 only	√	√		√
Poland G2	√	√	√	√	Minor route		limited

These variations are associated with the predominant modes found in:

Group One - England and Italy: where bricklaying is a trade under pressure, a pressure evident in the low currency of VET, shortages in apprenticeship provision, changes in the scope of the occupation, integration into the education process, the nature of social partnership, and notions of competence and project management ability. In Italy, very great variation in the status and quality of VET from region to region is also a serious issue (DTI 2008: 29).

Group Two - Poland: generally seen as representative of a school/education-based VET system, as is France (though in the case of bricklaying the French case is atypical in that apprenticeship is dominant and social partnership strong, hence its location in Group 3). The group is characterised by the holistic and broad nature of the qualification and a particular concept of competence relating to the development of project management ability. Poland, unlike France, does not have a well-developed social partnership system in which the social partners, including the trade unions, play an important role in the provision and administration of VET.

Group Three - Belgium, Denmark, France, Germany and the Netherlands: representative of the dual approach to VET (although Belgium has an equally strong school-based route), with governance responsibility divided between the state, employers and trade unions, strong occupational identity and breadth, and a distinct notion of occupational competence. Teaching is shared between workplace, workshop and classroom. France is included in this group as the dominant form of VET for bricklaying is a dual form of apprenticeship.

These Group Three systems are broadly characterised by breadth of scope in capacity to undertake technical operations within the construction industry and also by their emphasis on general education and the development of project management abilities. While there is very little variation in technical scope for Belgium, Denmark and Germany, technical scope is much more restricted in the case of the Dutch bricklayer, being more akin in this respect to England. Both the main Dutch and the English qualifications are best located at EQF level 2.

3. Key Points of EQF including Omissions in Design

Adopted by the European Parliament in 2008, the EQF is described as a ‘meta-framework’, designed to promote both a common terminology and a common reference point for the comparison of qualifications of the member countries of the European Union (EU) (Méhaut and Winch 2011). It can be seen as part of the general tendency, supported by international organisations (notably the OECD), to develop such frameworks at national and international level. The EQF appears as a comprehensive framework, aiming at transcending the boundaries between vocational and general education and thus consonant with one of the aims of European policy. The EQF is also fully engaged with the European policy of lifelong vocational and professional education, covering without distinction qualifications in both initial and continuing education. However it goes further in - following European terminology

and recommendations - aiming at qualifications which recognise learning acquired through ‘formal’, ‘informal’ and ‘non formal’ processes. In order to do this, but also on account of the failure of previous European attempts to elaborate a system of equivalence between qualifications, it is founded on learning outcomes. It thereby breaks with the ‘input-output’ approach (number of years of study, number of hours of VET (inputs) and, for example, an exam pass mark signifying a level of knowledge (outputs)).

As shown in Table 5, the design features of the EQF are intended to achieve two explicit objectives.

1. ‘Horizontal’ comparability of qualification levels between countries, supposedly necessary in the context of learner and labour market mobility in Europe, and presented as a preliminary to ECVET, the EU credit transfer scheme for European VET.
2. ‘Vertical’ comparability, more concerned with intra-national considerations in the context of life-long VET and vertical pathways from one qualification to another (as in the French or Dutch systems).

A third objective of the EQF, however, largely implicit, is that of position ‘on the labour market’, being presented as an instrument for the mobility of workers, facilitating comparison of qualifications and vocational abilities. ‘Competences’ are thereby formulated around a concept of autonomy which refers back to autonomy in learning but also to autonomy in the workplace.

Table 5: Outline of the European Qualifications Framework: Cognitive Characteristics

Levels	Knowledge	Skill	Competence (Autonomy and Responsibility)
Level 1 (lowest)			
Level 2			
Level 3			
Level 4			
Level 5			
Level 6			
Level 7			
Level 8 (doctoral)			

The framework is thus ‘meta’ in the sense that:

- different NQFs can be compared (presupposing a certain flexibility in the use of language);
- all qualifications can be assimilated, whatever their nature, goals and origins;
- whilst aimed at the development of general and vocational education policy, it goes beyond this towards the old aspiration of ‘the free movement of labour’.

How the EQF works

EQF does not directly certify competences as its purpose is to act as a meta-framework, an indirect comparator for qualifications in different countries. If certificated achievements can be specified in an NQF in terms of learning outcomes, then it should be possible to lay two or more qualifications alongside each other on the EQF grid to determine their degree of equivalence. If national qualifications are themselves based on learning outcomes and conform to the structure of the EQF, comparison becomes all the easier. The concept of a

learning outcome is nevertheless problematic and interpreted in different ways. As developed for NVQs in England, for instance, it assumes that if someone demonstrably has the ability to do something in workplace conditions, s/he should be accredited for that achievement, irrespective of how it was acquired - whether in the workplace, workshop or classroom. Crucial to this perspective is the set of descriptors setting out the competence to be guaranteed by certification. This sense of 'learning outcome' is, however, quite specific and does not correspond to the broader way in which this term is often used (Brockmann et al 2008a).

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 levels within an academic hierarchy (rows). Comparisons between two national qualifications are effected by locating two or more qualifications in rows within the EQF grid and, if the location of the row coincides for the national qualifications, the qualification level is deemed equivalent (Table 5). The EQF thus enables national qualification levels to be compared with each other.

Because of its strong learning outcome design feature, the EQF is also intended to encompass certified learning outcomes achieved through APEL – that is, distinct from a formal learning process - as well as through conventional pedagogic routes. However, the term 'learning outcome' is more often used in the sense of a 'standard', that is a set of criteria marking progress through a curriculum and serving as the basis for the design of assessment instruments (Brockmann et al 2008a; Allais et al 2009). These instruments may determine the degree to which a candidate following the curriculum has or has not met the standard (Coles 2007).

A Multilingual construct – what may be lost in translation

EQF is available in each of the languages used within the EU and this poses problems of translation and interpretation. To take the example of English, the vertical subdivisions of 'knowledge', 'skill' and 'competence' can be applied in a specifically English context and there is a danger that important differences in the concepts as applied in different countries are not properly appreciated:

Knowledge: English does not distinguish explicitly between systematic and non-systematic knowledge in the way that, for example, German does through the distinction between 'Wissen' (systematic knowledge) and 'Kenntnis' (non-systematic knowledge). However, the German version of EQF renders 'Knowledge' as 'Kenntnis', though the developing NQF uses the term 'Wissen'.

Skill: the English term is notoriously elastic, rooted in the idea of ability to carry out a type of task and does not encompass any idea of breadth or occupational capacity, for example, as German does through the specification of '*berufliche Handlungsfähigkeit*' or 'occupational action capacity'. German also makes the distinction between a meta-ability, such as the ability to plan or to co-ordinate, which is rendered as a '*Fähigkeit*' and task-related knacks or skills, called '*Fertigkeiten*'. The subtleties of classification of 'know-how' – as a more apt term than 'skill' - are lost in the translations offered within the EQF. This is an important issue for this project as the abilities predicted for construction workers over the next ten years are precisely those which are manifested not in the carrying out of any one particular kind of task ('skills'), but rather in a variety of different kinds of activity associated with bringing a project to fruition (*Fähigkeiten*) (DTI 2008: 23).

Competence is the term that embodies the most complexity and potential for confusion. The EQF has itself sometimes been described as a 'competence framework' (EU 2010c) However, the holder of a qualification will be expected to show attributes, more or less integrated,

across all three of the columns in Table 5 and will, in this sense, have attained learning outcomes that involve knowledge, skill, autonomy and responsibility. The English term ‘competence’ and its associated terms in other languages, such as ‘*Kompetenz*’ in German and ‘*compétence*’ in French have particular meanings in the vocational context. Thus the English term tends to refer to attainment of a skill or bundle of skills at a threshold level and does not embrace personal independence or the bringing to bear of judgment informed by systematic knowledge in the way that it does, for example, in the Dutch, French and German terms (Winch 2011; Brockmann et al 2008b; Brockmann et al 2008c).

More critically, the idea of autonomous workers who can plan, control, co-ordinate and evaluate their own work is very different from position within a managerial hierarchy, which is what ‘autonomy and responsibility’ in the third column of the EQF grid can be seen to signify (Table 5). This has important consequences for the comparison of bricklaying qualifications because, as we have already seen – these attributes are important in at least six of the eight countries in this study and will become increasingly important over the next ten years.

A further critical omission from the framework, one that is likely to cause major problems when sectoral and occupational frameworks are created, is that of *scope*. As apparent from Tables 1 and 6 (see appendix), qualifications in different countries that nominally cover the same occupation (for instance, bricklayer, *maçon*, *Maurer*) may embrace a very different range of activities. Thus in some countries (e.g. England) the bricklaying qualification is focussed largely on just laying bricks, whilst in others it covers a great deal more. To take the example of the French qualification, directed towards the expectation that a qualified *maçon* is able to construct a house with some assistance from other occupations, the specific competences incorporated include: 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 (Méhaut and Hervy-Guillaume 2009; Brockmann et al 2008c). These variations in scope, which are considerable between countries, are not taken account of in the EQF so that it provides an incomplete outline of the terrain that needs to be mapped out at occupational level. Any occupational qualification framework for bricklaying would need to detail what the qualification contains and thus address this ‘scope’ dimension.

4. Progress with NQFs and the Referencing Process in each Country

The second stage of implementation of the EQF, the alignment or reconciliation (‘referencing’ in official language) of national qualifications or NQFs with the EQF, is necessary in order that there is at least a nominal equivalence between the status (level) of a national qualification and an EQF level. If the EQF is to serve as the medium of translation between the level of a qualification belonging to country A and a qualification belonging to country B, then it needs to be consistent and trustworthy. The very process of referencing puts pressure on individual countries to produce a NQF if this does not already exist, as referencing of individual qualifications to the EQF would otherwise be involved and thus become too burdensome. However, the lack of a standard procedure for referencing or of a mandatory international peer review of national referencing exercises brings the danger that the process will not be trusted, particularly as there is a potential conflict of interest between impartial referencing at the EU level and the political and economic imperatives of individual countries. A particular national referencing process may also not command international confidence if it is not sufficiently rigorous and thorough.

All eight countries in the study have developed or are developing NQFs. Most of these are eight level frameworks, modelled on the EQF with three vertical divisions into Knowledge, Skills and Autonomy/Responsibility. Germany and probably the Netherlands will use an overarching concept of competence for organising their NQFs. All countries are using some conception of learning outcomes as a basis for the framework descriptors.

5. The Sector Qualification Framework – Construction (SQF-Con)

The SQF (Sector Qualification Framework) project worked out the framework for the construction sector, leaving subgroups to fill in the details for the different levels and columns (Syben 2009). SQF has the feature of setting out the work phases of construction from inception to handover:

- planning;
- setting out the site;
- surveying;
- building production;
- civil engineering production;
- checking, calculating and accepting.

Proposed SQF levels (Table 7) are roughly equivalent to those in the EQF. For bricklaying, the phases of particular relevance are: participation in planning (level 4); surveying (levels 3, 4); building production (levels 2- 3); civil engineering production (levels 1- 4 inclusive). SQF proposes too a level 3a, which is primarily designed for the role of managing small occupational groups, though perhaps most useful as an option for a necessary qualification gained after some industrial experience and additional theoretical education. Because of the generality of SQF, it is not possible to specify in any great detail - though a level 3 construction worker should have the independence necessary to carry out work without detailed supervision. The SQF is regarded as both compatible with (using a very similar vertical structure: Knowledge, Skills and Competence) and supplementing the EQF in sufficient detail to be of use to the construction industry, taking account of future as well as current needs. There is as a result a corresponding emphasis on elements of know-how that transcend manual skills.

Table 7: The SQF Framework.

Knowledge 'knows'	Skills 'can'	Competence 'is able to'
Tools, Equipment	practical operations	Managing, controlling
Material	Logical operations	Achieving results
Rules, Norms, Regulations	Planning, organising	Taking responsibility
Procedures	Communicating	
Frames of actions, actors, interfaces		

(Syben 2009: 13).

As is evident from Table 7, each vertical division of the SQF is also subdivided into components. Whilst the Knowledge column is relatively straightforward, the distinction between 'can' and 'is able to' in the second and third columns could more clearly distinguish between: a) practical skills; and b) a category of 'polymorphous' activities which do not have a single physical manifestation but are nevertheless essential to an articulated sequence of activity and which capture the degree of independence and personal responsibility of the individual in the way that most national frameworks covering bricklaying qualifications do. It

is also necessary, as in the German NQF, to take account of self and project management in order to capture the full range of abilities and aptitudes required of bricklayers now and in the future.

Any adaptation of the SQF needs to:

- capture the distinction between systematic and non-systematic knowledge (Knowledge column);
- distinguish between know-how that is manifested in: the achievement of identifiable types of task (skills); and a variety of different activities (polymorphous or transversal abilities);
- capture those elements of intentional ability that largely involve elements of character and disposition (personal competence).

These are not watertight categories, but do justice to what is increasingly expected of bricklayers, including the abilities to: control their own labour process; work in a co-ordinated way with others; and learn from experience. Recategorising them in the way indicated in Table 8 has the benefit of indicating that, apart from task-based activities, most of the construction labour process does not just rely on specific skills but on more broadly-based abilities. The SQF could in this way provide a framework within which any comparator for bricklaying qualifications should be able to fit, subject to caveats concerning the classification of different kinds of practical ability and the knowledge and experience needed to achieve different levels.

Table 8: A Proposed Revision of the SQF Structure.

Structure of requirements				
Occupational competence			Personal competence	
Knowledge	Know How		Social competence	Self-competence
Tools, equipment, materials Depth and breath, Systematic, Non-systematic	Skills: Manual, Intellectual Scope of activities to be undertaken	Transversal Abilities: Planning, Organising, Controlling Assessing Scope of activities to be undertaken	Team/leadership skills, involvement and communication	Autonomy/ responsibility, achieving results, reflectiveness and learning competence, taking responsibility

6. Qualification and Zones of Mutual Trust (ZMTs)

Construction is a sector characterised by a high degree of labour, firm and capital mobility. Mutual recognition of vocational qualifications and experience is an important and perennial practical issue. Implementation of the EQF comes under the Open Method of Coordination and thus takes place on a voluntary basis, albeit with significant EU encouragement. Based on the proposals of Coles and Oates (2004) and adopted within the EQF proposal, it is envisaged that ZMT will develop within which quality assurance for the national qualifications that are to be compared can be established (EC 2008). A ZMT is defined as:

An agreement between individuals, enterprises and other organisations concerning the delivery, recognition and evaluation of vocational learning outcomes (knowledge, skills and competences). They offer practical help with decisions about the value of qualifications and certification, further learning and recruitment into employment. They may be dynamic in nature and may become more or less formal in scope and form according to the mutual confidence and needs of the stakeholders involved. (Coles and Oates 2004: 8).

One apparent difficulty in applying a notion of trust at the international level is, however, that nation states may find it difficult to trust each other as they do not necessarily share common

values regarding the development of labour through VET. This is unlikely to be a problem if two or more nation states have long co-operated on projects of mutual interest, conditions which are at least met in some EU regions. There are similarities and differences in the role that VET plays and in the philosophical and ethical underpinnings of different systems, and it may be possible to identify distinct families of approaches (Green 1990; Ashton and Green 1996; Clarke and Winch 2007; Green et al 1999).

For example, for congruent national systems a 'Germanic' VET approach can be identified, where the dominant VET route is represented by a modification of the traditional apprenticeship into a scheme whereby a junior employee takes part in an integrated programme of education involving classroom, simulatory workshop and workplace (the 'Dual System'). This family would include Germany, Austria, and Switzerland, with the Netherlands and Denmark as outlying members. Here responsibility for VET is jointly shared between the government and the social partners (employers and trade unions), VET is a key subject of collective bargaining, and sectoral training funds support provision. Within this perspective, Germany, the Netherlands, Denmark and Belgium share similar features in bricklaying VET, joined by France where a structured, education-oriented, apprenticeship route into bricklaying is dominant.

If VET systems are grouped in terms of structural typology, then distinct families of trust are evident across different countries, as suggested in the approach adopted by Green, Wolf and Leney (1999) which identified apprenticeship, alternance and mixed systems as dominant European modes. The basis on which VET is constructed and its underlying assumptions in the 'Dual' systems (far distant from the nineteenth century model of apprenticeship) are indicative of the importance attached to VET and the commitment to a broad education, as well as the role, value and status accorded to labour, and the place of occupations in establishing social identity. Likewise, those countries, such as Poland, adopting an 'educational' model in their VET systems, where considerable emphasis is laid on broader educational elements such as civic education and underpinning knowledge (e.g. mathematics), are likely to find it easier to understand each other than those which subscribe to the 'training' model, where the emphasis is rather on the skills required for specific workplace activities (and vice versa). In this regard, France and Germany tend to understand each other's systems better than say France and England or Germany and Italy. VET systems that recognise the importance of transversal abilities and personal and social qualities are also better able to adapt to changing conditions within an occupation. In this study, broadly based VET systems for bricklaying include all but England and Italy.

ZMTs have to work in the labour market if the mutual recognition of qualifications is to take place. Trust must therefore exist between the prospective employer and the issuer of the qualifications presented. This means that agreement between governments and/or sectoral bodies concerning the referencing of qualifications against the EQF may be a necessary but not sufficient condition for developing mutual trust. Detailed development of a construction SQF and of a Bricklaying Framework may be a preliminary to the operation of the EQF in bricklaying, but this does not mean that it will be taken seriously by employers and trade unions. 'Officially' designated equivalences may encounter difficulties in recognition within the labour market. Any occupational qualification depends too for its validity on the involvement and agreement of all stakeholders; the less the agreement and involvement of all those concerned, the weaker its currency and status in the labour market is likely to be. In turn, the weaker this currency, the less effective is EQF likely to be and the greater the difficulty in mutually trusting and recognising qualifications.

7. Common and Divergent Elements in Bricklaying Qualifications in the Eight Countries

The most basic common element is that in all eight countries the qualification requires the holder to be able to lay bricks. Beyond this, it is difficult to identify completely common elements in all eight countries, only different Groups of bricklaying VET and qualifications, especially the Group Three members - Belgium, Denmark, France, and Germany. The Netherlands would conform to this group too were it not that the bricklaying qualification is typically the equivalent of Level 2 and is rather narrow in scope. Poland is slightly more difficult to place because of the school-based nature of its system, though any constraint in attaching to Group Three is likely to depend on the industrial experience of the qualified Polish bricklayer rather than on the breadth and depth of the VET. An individual with the level 3 bricklaying qualification, who also possesses sufficient industrial experience, should be as acceptable, if not more so, than a recent graduate from a Dual route. In fact, the issue is not peculiar to Poland and Group Three countries, since Belgium, England, France, Germany and the Netherlands also have school-based routes and graduates from these will also need to gain experience in order for their qualifications to attain their full value on the labour market.

The main divergence in the bricklaying qualifications of England and- to a lesser extent - Italy and the other six countries may be summarised as:

- the narrowness of scope
- the weakness of the knowledge base
- the lack of a general and civic educational element
- the limited development of a capacity for self and project management
- the relatively low, though increasing, labour market currency.

It is possible that experience may narrow this gap. For example, an apprentice working for a small firm in England may acquire a range of skills and abilities that may not be so readily available with a large labour-only bricklaying subcontractor. Personal and social competences are also likely to grow with experience within more polyvalent roles of smaller firms. These are very considerable divergences at initial VET level whose correction is likely to entail considerable curriculum reform in bricklaying if there is an intention to make them at least roughly equivalent with Group Three countries. Beyond this, however, is the issue of the structure and governance of bricklaying.

The various micro-studies we have conducted in firms, sites and colleges in the eight countries suggest that there are considerable differences in the stability of the structures that underlie bricklaying VET. An important precondition for the development and retention of trust is familiarity with institutions and ways of working, premised, in turn, on relative stability. Those countries with relatively stable institutional and governance structures will find it easier to work with each other than those which do not. The critical institutional structures are: industry-wide bodies, including employer associations, trade unions, and VET organisations; group training providers such as the *Samenwerkingsverbanden* in the Netherlands, the Institutions for Training Workers in the Building Industry in Italy, and the *Compagnons du Devoir* in France; the construction firms themselves, colleges and training centres. To ensure permanence in the structures through which VET is organised, social partnership arrangements tend to be more effective than the alternatives of market forces on the one hand and strong state control on the other. Once again, those countries with social partnership governance of bricklaying VET together with relatively stable firms and training institutions at the point of delivery should find it easiest to co-operate and to develop practices of mutual trust.

8. Towards a Methodology for Creating a Common Framework

Whilst difficulties in setting up a framework for the comparison of VET qualifications appear surmountable, gaining agreement between countries to conform to this is still more difficult and beyond our scope to consider. A common comparative framework for bricklaying would need to meet the following requirements:

- work within EQF/SQF structures;
- make certain modifications to the EQF;
- give consideration to a level 3a as recommended by the SQF report;
- interpret learning outcomes flexibly and in a broader sense than purely outcomes-based as this is unlikely to be realisable in a practical sense (Brockmann et al 2008a);
- include a *scope dimension* to take account of the range of bricklaying and related activities and to ensure that the descriptors in each national qualification genuinely match each other in descriptive content rather than just being of a nominally equivalent level. This is potentially tricky in cutting across the other dimensions of the framework making it, in effect, three dimensional. Without it, however, the framework would be of little use. At its simplest, scope can be accommodated by adding activities to the proposed SQF table (Table 8). For a more prescriptive framework, core and optional activities would need to be specified – as indicated in Table 6 (see appendix);
- clarification of ‘competence’ to emphasise self and project management, through modifying the ‘autonomy and responsibility’ column;
- accountable referencing for bricklaying to avoid the possibly highly unsatisfactory outcomes of the current EQF process;
- be acceptable to a majority of the participating countries.

9: Prospects for Creating a Common Framework for Comparison of Qualifications within EQF

Group Two and Group Three bricklaying qualifications show good potential for the development of a ZMT based on the similarities of their respective VET systems. The development of technical breadth, general education and project management abilities are common curricular features, although, in the case of the Netherlands, there would need to be considerable changes made to the technical curriculum in order to bring bricklaying qualifications into a common ZMT where these were recognised as equivalents with those of the other countries. However, all six countries should find it relatively easy to accept each other’s qualifications in the labour market (given the proviso above about the Netherlands) and, if appropriate and relatively minor changes were to be made, the curricula, would be very similar – as indicated in Table 6 (see appendix). The common emphasis on project management and personal responsibility helps to generate a justified set of common expectations concerning the ability of bricklayers from these two groups to work independently, co-operatively and responsibly, with relatively low levels of supervision.

There remains an issue concerning the relative labour market value of school-based as opposed to apprenticeship- or Dual-based qualifications but this is an issue that could be characterised as a trust issue at the national level. It rests on a perception that learners who have not carried out part of their initial VET in operational conditions within the construction industry are less well-equipped than those with similar school and workshop-based input but with the addition of apprenticeship –type, work-based experience.

Our conclusion for Group Two and Group Three countries is therefore that the elements for a ZMT exist, given certain national modifications, due to broad similarities in the aims and content of the respective systems. Group One countries, however, highlight the difficulties in

integrating all eight countries in a common ZMT as these are ‘outliers’ with respect to the other six. Above all in England, bricklaying is organised more as a trade, based on narrow and specialised task descriptions. General education and project management are insignificant elements in the initial VET programmes. In addition, the lack of social partnership arrangements for the governance of bricklaying VET contributes to a lack of labour market credibility in the nature of the curriculum and the qualification structure. When these are at the disposal of the state and/or major contractors, then the temptation is to change them according to the needs of the moment, leading to confusion even within the national industry itself as changes follow each in bewildering succession. Furthermore, the development of a ZMT *within* countries with Group One characteristics is itself problematic due to this constant change, their differences from each other in respect of technical scope and, in the case of Italy, strong regional variation.

As the initial VET systems and qualifications for bricklaying in Group Two and Three countries generally serve them well, the alternatives suggested are:

- Group One countries, and in particular England, reform their bricklaying VET by, for example:
 - Introducing greater social partnership arrangements for the recognition of qualifications.
 - Revising the curriculum to accommodate greater technical scope, more general education and the development of project management ability
- Group One remains outside the initial process of forming a ZMT for bricklaying or for the construction industry within the EU. If a workable system of Accreditation of Prior Experiential Learning (APEL) were to be developed for bricklaying, part of the asymmetry between Group One and Groups Two and Three might be mitigated.

The consequences of the second alternative are, however, likely to be asymmetric: flows of bricklayers from other countries into Group One countries are likely to continue because employers already have a good understanding of their qualities and find them valuable for certain purposes. Group One bricklayers may gain access to the labour markets of Group Two and Three countries but be increasingly confined to relatively narrow and subordinate roles compared with bricklayers from Groups Two and Three. The transparency afforded by the EQF will reinforce this tendency.

An SQF adapted as an Occupational Qualification Framework (OQF) along the lines suggested in Table 8 would be suitable as an instrument for developing a ZMT for bricklaying. In effect it would serve as a sectoral and occupational instrument of mutual recognition, having the additional benefit of ‘future proofing’ a bricklaying framework because of its flexibility and the relative ease of adjustment according to need.

ⁱ By ‘project management abilities’ we understand the ability to do one or more of the following: plan, control, co-ordinate, evaluate in relation to extended assignments within the contract up to and including the complete execution of a building project.