



European Federation
of Building
and Woodworkers



Education and Culture DG

Lifelong Learning Programme

**Leonardo Da Vinci Project
„Bricklayer“**

Bricklaying Country report

Denmark

Flemming Jensen and Sidse Buch
3F, Copenhagen

1. Governance

Governance at the different institutional levels

The Danish upper secondary vocational education and training systems- (VET) is a national system which offers qualifications that are recognised nationally by employers, trade unions and the educational providers. The system is characterised by a close institutionalised tri-partite collaboration at all system levels. This guarantees that VET programmes are responsive to the labour market and that qualifications are recognised in business and industry. The vocational colleges that offer upper secondary vocational qualification are all public.

Since a Reform of the VET system in 1991, the governance of the Danish VET system has been highly decentralised, based on a principle of *management-by-objectives*. The system has been in an ongoing evolutionary process, delegating greater co-responsibility (content, execution, finance, quality management) and authority to the vocational colleges. This is to ensure that the system can proactively respond to changes in the labour market and the wider society as well as meet local conditions and specific needs. Broad educational Acts regulate the programmes by specifying the educational objectives and principles concerning the organisation of the programmes (basic structure, duration and apprenticeship). It is the responsibility of the providers of the programmes to organise the education and training programmes in order to achieve the objectives. Since 1991 the upper secondary vocational education system has undergone a number of reforms to align to different external demands. Most recently, and as a follow up to the Danish Globalisation Council, the Minister of Education appointed a Task Force for future validation of VET. One of the central aims of the Task Force was to propose new solutions to improving completion rates in upper secondary vocational education (VET), and to improve the attractiveness of the programmes to students with different profiles. The Task Force formulated a range of recommendations, which are covered under the relevant headings.¹

Governance structure – the Danish VET system

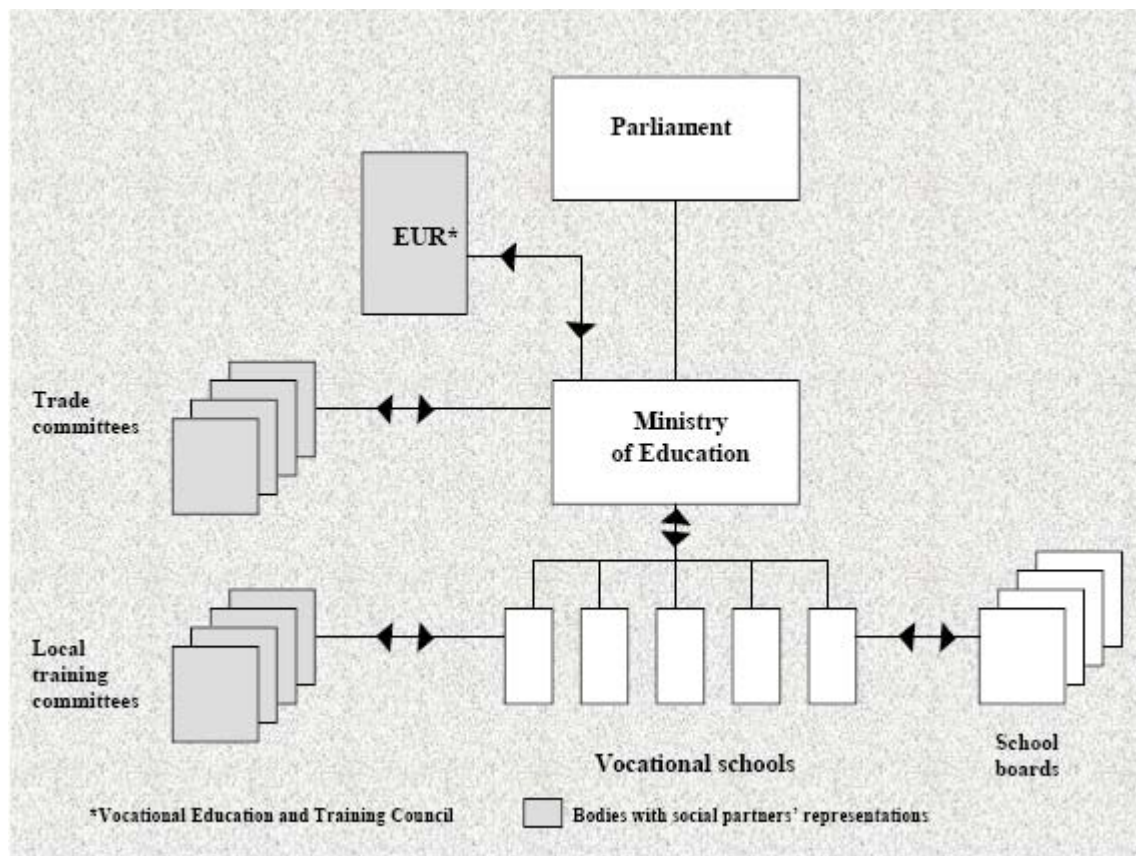
The figure below shows the overall governance structure and actors within the system. The Danish VET system is a dual system characterised by a tri-partite governance structure in which the trade representatives play a central role both a system level and at the institutional level. Each actor and their roles are further described in the following sections:

- **The role of the state:**

The Ministry of Education organises a coherent system of vocational education aimed at the private and public labour markets. The Ministry of Education approves new programmes and can discard programmes upon the recommendation of the Council for Initial Vocational Education (REU). The Ministry of Education stipulates the main Act as well as the educational orders for the individual qualifications in upper secondary vocational education and upon recommendations of the Council for Initial Vocational Education. Following resolution by the Trade Committees, the Ministry of Education defines the duration and structure of the individual programmes such as the bricklayer qualification, including the balance between the school component and the company component of the programme. This also includes regulations governing the transition from the basic programme to the main programme.

1

http://www.ug.dk/FlereOmraader/videnscenter/litteratur_og_artikler/vejledningens_organisation_og_historie/genereelt_og_tvaergaende/rapport_fra_udvalget_om_fremtidssikring_af_erhvervsuddannelserne.aspx



Cort, Pia (2002): *Vocational education and training in Denmark*, Luxemburg: Office for Official Publications of the European Communities, Cedefop Panorama Series

- **The Council for Initial Vocational Education and Training (REU):**

This is a formally constituted advisory body for the Ministry of Education on all matters that concern the governance and development of the upper secondary vocational education and training system. The Minister of Education appoints the head of the Council. The Council has an equal number of representatives from employers and trade unions. Furthermore, the council has representation from the counties and municipalities (as public employers), public servants (as public employees), students, and teachers and management from the colleges of commerce and trade, and technical colleges (in total 24 members plus the head of the council). Members are appointed for a four year period. The Ministry of Education, the Ministry of Industry and the Ministry of Labour each appoint one representative, and the Ministry of Education provides secretarial support to the Council.

The Council gives advice to the Minister and the Ministry on matters concerning the vocational education and training system such as structure, accreditation of colleges, and on the framework for content and assessment. To ensure a dynamic VET system aligned to labour market needs, the Council has the responsibility to follow general developments in the labour market so as to advise the Ministry on the need for new programmes or the cancellation of existing programmes which are no longer of relevance to the labour market. The use of statistics plays a central role in monitoring developments in the upper secondary vocational education and training system including transition rates to the labour market following the journeyman's test. The Council also advises the Ministry on supply/provision of vocational education and training and other matters relevant to the governance of the system. (see the following section for a further description of decision-making structures in the system).

- **The trade committees:**

The employers and employees set up trade committees – approximately 50 – which comprise all existing programme offers. The trade committee for bricklayers has four representatives from the employers' and four representatives from trade unions'. The Trade Committees monitor labour market developments within their particular sector and related areas with regard to the development of new programmes and the revision or cancellation of programmes. The trade Committees will in many instances have secretariats to undertake many of these tasks.

Within the general framework, the trade committees are responsible for and decide on the following in relation to the programmes they represent:

- Content of regulations concerning objectives, duration and structure including the division between the school component and the company component of the educational programme and eventual reference levels in the programme
- Content of regulations concerning assessment plans for Area subjects and Specialty subjects
- Content of the regulations concerning the apprentice education and the programme linkages to one or more entryways
- Choice of core subjects in the main part of the specific programmes
- Approval of apprentice companies
- Special regulations in apprentice agreements
- Recommendations to the Ministry of Education regarding VET-programmes to be offered by colleges
- Abbreviation or extension of a programme
- Complaints concerning the schools' acceptance or finalisation of school apprentice arrangements
- Disagreements between apprentice companies and the students.

Decisions made by the trade committees cannot be appealed to another authority. The trade committees assist the Council concerning common area subjects, and will upon request from the Council give their views on matters of relevance to the Council's work. The Trade committees can delegate specific tasks to the local committees at the institutional level. In the following sections the role of the social partners is covered further in relevant sections.

- **Local education/training committees:**

The main Act stipulates that each vocational college must constitute one or more local educational committees with trade representatives of all the programmes they offer. At the local level, they advise the colleges regarding the planning of the programme, cooperate with local trade and industry, have a role in stimulating more companies to sign apprentice contracts, and play a central role in ongoing assessment as well as external assessors in the final journeyman's test. The final journeyman's test consists of a practical and a theoretical test after the final school period.

In collaboration with the local committee, the colleges define and specify the content of the regulations for each programme they offer in a local educational plan (*lokale uddannelsesplan LLU*). Members in the local committees are union representatives and employer representatives from the particular trade. In all 19 vocational institutions where the bricklayer qualification is offered there is a local education and training committee representing the bricklayer occupation.

College Governing Boards at the vocational colleges represent the local level of coordination. Board members are representatives from the county and the municipality and from the employers' and employees' organisations. The School director is appointed by the board. The board is responsible for and monitors the college's management and administration.

Funding principles

The Danish upper secondary vocational education system is funded on a rather unique principle that has created interest in other systems. It is based on a funding model which involves employers, regardless if they take apprentices or not, and the State.

A. Education costs for vocational education

The basic financial management principle for the vocational education area is target and framework management.

Vocational colleges receive a rated system of block grants composed of:

- A teaching element dependent on activity levels, to cover teachers' salaries and teaching materials and equipment;
- A collective expenses element to cover expenses that cannot be linked to specific educational programmes, such as administration and management costs, operational costs, materials and equipment;
- A building and maintenance element dependent on activity levels, to cover capital costs including building rental, interest and payments on mortgage debt, and expenses related to the maintenance of the buildings;
- A completion element that is paid out when the student graduates. This was introduced in 2003;
- An apprenticeship taximeter, which is paid out for each apprenticeship contract.

In addition, vocational education programmes are dependent on a range of fixed subsidies such as basic grants (currently composed of an activity-level independent basic grant, which is budgeted as a unit grant, and an activity-dependent basic grant, which is intended to provide support for the institutional structure) and sales tax reimbursement for institutions offering vocationally-oriented programmes, and a range of smaller subsidies for research and development work, etc.

- **Subsidy rates**

There has been ongoing debate about the subsidy system because there has in many areas been a discord between the rates and the actual costs of vocational education programmes.

Rates are calculated in the equivalent of student-years. One student year is the equivalent of one person following a full time course of education for 40 weeks. Rates are set annually in the State Financial Budget and vary according to vocational education programme, especially those offered by technical colleges.

The overall average rate for technical vocational education programmes in 2004 was DKK 94,400 per student-year; the overall average rate for commercial vocational education programmes (including wholesale trade and retail trade with specialisation) was DKK 57,100.

- **Other elements in the total cost of vocational education**

Another aspect of the total costs in vocational education is related to the national *Student Grant and Loan Scheme (SU)*. Students enrolled in basic programmes can be entitled to SU grants. Since commercial vocational programmes contain a longer basic programme than the technical programmes, this expenditure will be greater for commercial programmes.

In addition, the *Employers' Trainee Reimbursement System (AER)* provides salary reimbursement with fixed subsidies during an apprentice's school-based study periods, subsidises apprentices' travel expenses, and subsidises apprenticeships abroad.

In order to qualify for AER subsidies to apprenticeships, employers must pay contributions to ATP (the Labour Market Supplementary Pension Group). Employers with only one employee – who therefore are exempt from making ATP contributions, all other pay inn – can also receive subsidies.

In order for an enterprise to receive AER subsidy, the enterprise and the student must have entered into an approved training contract, the student must not take on employment during periods of school-based education, and the student must receive wages in accordance with partner collective agreements. The closer the student is to graduation, the higher the level of subsidy.

Daily and weekly (5 day) subsidy rates for 2009 (in DKK) are:

	Daily	Weekly
1 st year students	396	1,980
2 nd year students	446	2,230
3 rd year students	502	2,510
4 th year students	560	2,800
Adult students	782	3,910

Source: AER

- **Overall total subsidy rates in vocational education, 2004**

For students enrolled in ordinary main programmes with an apprenticeship in an enterprise, the average total state rate (including SU grants and AER reimbursement – see below) per student for a standard-length vocational education programme is approximately DKK 171,000 for commercial programmes and DKK 157,000 for technical programmes.

- **Overall total costs of vocational education per student, 2004**

For students enrolled in main programmes with school-based apprenticeship, the average total state rate (including SU grants) per student for a standard-length vocational education programme is approximately DKK 58,000 for commercial programmes and DKK 96,000 for technical programmes. In addition, there are state expenditures for school-based practical training grants (a grant that ‘replaces’ apprentice wages), amounting to an average of DKK 134,000 per student. Thus, the total average state expenditure per student for a standard-length vocational education programme with school-based practical training is approximately DKK 193,000 for commercial programmes and DKK 231,000 for technical programmes.²

2. Vocational education/learning

As other apprentice systems, the upper secondary vocational education and training programmes have a broad basis that serves different purposes. The objectives of vocational education and training stipulated in the legislation are to:

- qualify the students to employment as skilled workers;
- provide them the basis for further education and lifelong learning;
- contribute to the students’ personal and social development.

Programmes are in general designed with a view to employability – that is – to ensure that students acquire a skills foundation so they have better opportunities to shift to new occupations. The programmes are also designed with a view to ensure that the students obtain

² www.atp.dk/X5/wps/wcm/connect/ATP/atp.com/index/erhverv/AER

a mix of skills sufficient to participate in lifelong learning - about one out of four who are originally qualified as bricklayers shift to another occupation.

Entry qualification level

An individual who has completed the compulsory schooling may start an upper secondary qualification. For certain programmes which do not offer good employment opportunities, students need to have a signed apprentice contract in order to start the specific programme, examples being Administration, Animal Care, Digital media, Hairdresser, etc.³ Thus, entry into a VET programme requires completion of compulsory education (9th or 10th grade). In the Danish national qualification framework, this entry level corresponds to an EQF level 1-2.

There are three main access routes:

- i) An apprentice contract may be signed with a company from the beginning. It is then up to the apprentice company if the student should start the vocational programme directly as an apprentice or with an initial school period.
- ii) A student may also commence the vocational programme through the basic programme at a vocational college that is accredited to offer the programme. During the basic programme the student is expected to search for an apprentice contract and the student gets active assistance from the school in that process.
- iii) Students may also start the programme through a traditional apprentice model ("New Apprenticeship" - *mesterlære*) and commence his or her vocational education in a company which offers practical training. The student enters a training agreement with a company, and during the first year must acquire the same as those who have followed the basic programme at a college. This requires flexible adaptation on the part of the student, the company and the college. This option has been introduced to make access easier for students who are more inclined towards learning through practice.

Type and duration

All VET programmes consist of two parts: an initial basic programme and a main programme of vocational specialisation. The basic course is flexible in duration and depends on the individual student's prior qualifications and ambitions. Since August 2008 the basic programmes have been organised in 12 vocational clusters (access routes), of which "Building and Construction" includes 15 programmes - bricklaying is one of them.

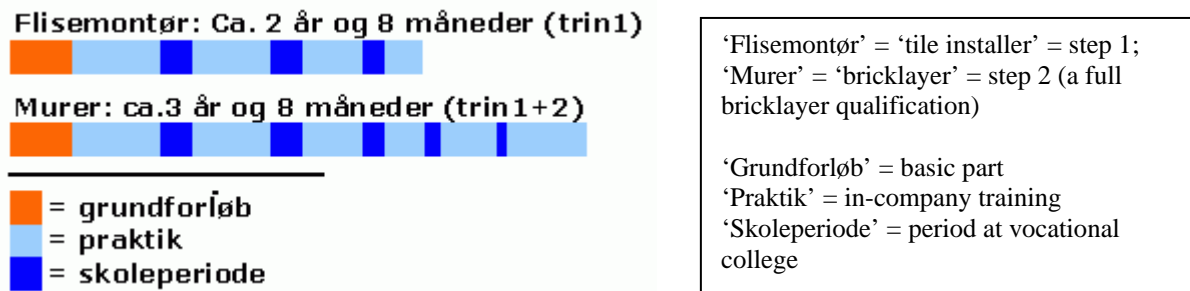
The basic programme is followed by the main course or VET-programme, which is based on an alternating principle whereby the trainee enters into a contract with a company and alternates between school-based education/training and work-based training. The main programme typically takes 3 - 3½ years, but can be shorter or longer for certain programmes (from 1½ and up to 5 years). In order to enter and complete the main course of choice, the student must have a training agreement with an approved company which offers training. The agreement can cover all or parts of the basic course, but is compulsory for the main course. During the main programme, students alternate between learning in the company (50-70 % of the time) and at the college (30-50 % of the time). The school-based periods are organised as blocks of between 5 and 10 weeks.

The duration of bricklaying programme is approximately 3 years and 8 months – a full qualification as bricklayer. As all other programmes, the programme consists of a basic course and a main course. The basic course consists of an initial 20 week programme at a vocational school. The main course is structured with two levels of qualifications - two steps. The first level takes 2 years and 8 months and includes 20 weeks at vocational college – the

³ For an overview of current programs without open access, see <http://www.uvm.dk/Uddannelse/Erhvervsuddannelser/Om%20erhvervsuddannelserne/Sporgsmaal%20og%20svar/Adgangsbegraensning.aspx>

rest consists of company training. The student obtains a qualification as ‘*Flisemontør*’ (tile installer) - a fully recognised upper secondary qualification. The student has the right to return to education to complete the next level which leads to a full qualification as bricklayer. Step 2 includes 15 weeks at vocational college – and the rest consists of company training.

The figure illustrates the programme structure with the two levels of qualification:



Location – vocational education and training provision and workplace practice

The dual principle comprises alternating periods of school based education and practical training in a private enterprise or public institution. Combined the two forms of education and training are supposed to form a coherent qualification structure with the school part of the programme reinforcing the company based training. The student’s log book and personal education plan are elements to enable coherence, but there are variations in to the extent to which these measures are used in the company based training both from company to company and from trade to trade.

For bricklayers, a total of approximately 70% is spent on work placement and 30% is spent at vocational college. In-company training takes place in a company, or in some cases two companies, approved by the Trade Committee responsible as a training enterprise (approximately 20% of all companies are approved as training enterprises). Thus, the in-company training part is the longer part of the programme and is organised as employment with a salary on a contract basis in an apprenticeship. The apprentice takes part in the daily routines of the enterprise, initially together with skilled colleagues, then gradually more independently. The company training plays a vital role in contributing to a professional identity formation through interactions with peers at the work site. The social partners play a central role in the on-going monitoring of the quality of the in-company training.

Quality and monitoring

At a system level the Danish quality measures for vocational education and training are described and assessed within the framework of the Common Quality Assurance Framework. It comprises nine common measures for quality assurance from the perspective of VET: the involvement of stakeholders; common national guidelines; output monitoring including use of statistics, ministerial approval, monitoring and inspection; testing and examination; transparency and openness; evaluations by the Danish Evaluation Institute; and international cooperation and surveys.

The Danish approach to quality in upper secondary vocational education is characterised by the following features:

- It is a decentralised system in which the VET providers have a great deal of autonomy in terms of adapting the VET they provide to local needs and demands. Quality assurance and development have been on the political agenda in Denmark since the beginning of the 1990s, when the Danish Ministry of Education changed course from central governance to targeting framework governance based on rated

grants per student. The aim of the new guiding principles was to improve the overall responsiveness and effectiveness of the VET system. The VET providers should be relatively autonomous, enabling them to respond more rapidly to changes in the labour market stemming from technological, organisational and societal changes.

- It is a system in which the social partners play an institutionalised role at all levels, from the national council that advise the Danish Minister and the Danish Ministry of Education about VET, to the local training committees, as described in the following.

It is a rather tight-knit system, due to the continuous dialogue between stakeholders at all levels of the system, and the system is characterised as rather consensus based. Denmark is a small country, the stakeholders know each other and work together across the system, and there is widespread confidence and mutual trust among the various stakeholders.

The local trade committees approve the companies to undertake training during an internship on the basis of defined criteria and are responsible for monitoring the in-company training. To be approved, an enterprise must have a certain level of technology, and a variety of tasks to be performed that will ensure the trainee a full range of activities and tasks corresponding to the qualification requirements of a skilled worker. The trade committees are obliged to conduct continuous quality development and quality assurance of the educational and training programmes and the companies that offer practical training. The social partners also play a central role in the on-going assessment, as well as assessors in the final journey man's test.

The vocational colleges and the companies are obliged to cooperate closely regarding the students, being planned and specified in each student's educational plan. There is a requirement that all colleges have a quality control and management system for continuous quality assessment and development in which self-evaluation on the basis of the college's results forms a part. Due to requirements in the legislation the system outputs must be transparent. Therefore results are published on the college website together with measures for improvement of results. Many colleges are parts of networks to benchmark their results and for mutual inspiration. All the VET programmes and colleges can be included in evaluations carried out by the Danish Evaluation Institute.

The Ministry of Education monitor the performance based on various data on educational outcomes (intake, trainee flows, completion rates, marks, employment, etc) that the schools are obliged to collect and on occasional inspections. In collaboration with the Council for Vocational Training, the Ministry accredits the colleges' supply of VET based on a number of criteria. The Ministry confers upon institutions the right to provide specific VET programmes. The providers must fulfil a number of conditions, and if these are not fulfilled the approval may be revoked.

The process of inspection takes various forms, and is based on several inputs. These include desk research and analysis on the basis of selected data. The following information is included in the Ministry's inspection of quality at the vocational colleges: annual reports, websites, and data on completion rates, drop-out rates, grades, and transition rates to employment and further education. The inspection is not conducted by a specific national body. However, the Ministry is in the process of tightening up on monitoring, by introducing a new form of monitoring based on six quality indicators concerning output and outcomes. These indicators are: 1. Test and examination results; 2. Completion rates; 3. Completion times; 4. Drop-out rates and times; 5. Transition rates to other educational programme; and 6. Transition rates to the labour market.

The aim of the new system is to make the overall monitoring of quality in the Danish education system more systematic, and to provide a better foundation for the external evaluation of quality. The new system makes it possible to screen all educational institutions on an annual basis, and thereby identify institutions showing dissatisfactory results or quality in the training they provide.

Integration of theory with practice

Practical training takes place in both the company and the college, while theoretical teaching primarily occurs at the college. The college is responsible for organising the teaching in a holistic manner, and the colleges have the equipment that enables them to introduce the student to the practical side of the programme. General subjects such as mathematics or English are to a large extent integrated in a modular practice- and project-oriented structure. It is a specific intention of VET policies that the students should meet the occupational practice already during the basic programme. Since the latest revision of the main Act, the students without an apprentice contract have opportunities to participate in short placements in a company to prepare them for the labour market and as part of career guidance prior to signing an apprentice agreement.

Structure and content of curricula

During the past years a number of measures have been taken to increase the flexibility in the programmes to meet the needs and capacity of companies with quite different profiles. This includes new contractual forms whereby a couple of very specialised enterprises may share an apprentice or the company is not obliged from the outset to sign a full contract, though the student is guaranteed to complete his/her education through the school apprentice scheme. These measures have been implemented to expand the number of apprentice contracts signed. The flexibilisation may also involve school periods taking place to accommodate for activity levels which may vary during the year – as is also the case in bricklaying. Furthermore the content of the main programme may to some extent be adapted to the specific apprentice company's needs.

As a market based system, the dual system is vulnerable to economic fluctuation, which is also the situation under the current crisis, and not least within building and construction. Nevertheless it should be noted that the dual systems are highly successful in ensuring high transition rates to the labour market for those students that obtain a qualification as a skilled worker. Furthermore individuals with a qualification as a skilled worker also obtain a range of transferable skills which positively contribute to the dynamics of the Danish labour market. Intensive negotiations have therefore been undertaken between the Ministry of Education and the social partners during the spring to identify measures to expand the number of apprentice places during the current crisis.⁴ Since May 2009 a broad agreement has been reached with the social partners offering companies that enter an apprentice contract a financial reward which also may be supplemented by an additional reward if the student completes the in company training leading to an upper secondary qualification. The maximum sum is DKK 16,000 (about €2133). Individuals with an upper secondary qualification have an employment rate of approximately 80% one year after completion of their training (AER, 2004), which is a strong indicator of a well-functioning system.

The objectives of the programmes are described as competencies. Competence is an overarching term used also including knowledge and skills. All programmes contain at least one area of specialisation composed of specialised subjects. The remainder of the content is built up around the broad professionally oriented subjects and competencies (area subjects) and the fundamental general vocationally oriented subjects (basic subjects) and competencies.

4

<http://www.uvm.dk/Uddannelse/Erhvervsuddannelser/Om%20erhvervsuddannelserne/Nyheder/Erhvervsuddannelser/Udd/Erhvervs/2009/Aug/090811%20Ny%20praemieringsordning%20til%20arbejdsgivere%20skal%20skaffe%20flere%20praktikpladser.aspx>

Areas of knowledge / subjects / practice

• Scope of activities involved

As stated previously, upper secondary vocational programmes include a basic and a main programme. Below is a summary of the content of both:

Basic programme:

- Bricklaying techniques
- Mathematics
- Design.
- Work environment
- Materials in bricklaying
- Innovation and entrepreneurship
- Product development, production, and service
- Social science
- ICT

The general subjects are typically integrated in practice and occupationally relevant projects!

Main programme

The main programme for the education as bricklayer and tiler shifts between training at a technical school and practical training in a bricklaying firm, which is approved to train bricklayers and tilers.

The main competences are typically oriented in occupational relevant projects at school and what the apprentices can do.

Here follows a list of the competences that a bricklayer and a tiler are required to have achieved in order to pass the test for finishing the apprenticeship:

1. Carry out tiling in wet rooms and in connection with new construction, renovation and repair
2. Prepare and build floor concrete construction for different floor tiling materials, assess damage on existing tiles and floors and repair it
3. Assess and work interactively with drawing materials and specifications
4. Handle materials, equipment and the working environment following the health and safety regulations
5. Do brickwork and surface treatment with the right materials and being able to do repairs, reestablish and rebuild
6. Do mathematical calculations
7. Do scaffolding according to regulation
8. Plan and organize own work, including interfacing with customers and quality assuring projects
9. Collaborate with other actors in the labor process considering the structure of the labor market, including the companies, the organizations and the mutual regulation in the collective bargaining system
10. Recognize different styles, architecture and design and use aesthetic ideas
11. Can take health and safety steps when working with cold asphalt, bitumen, epoxy and isocyanides products according to the claims from the Factories Inspectorate
12. Construct drawings, make the levelling and build brick constructions according to drawings
13. Make the correct insulation in accordance to building regulations

14. Make new brickwork constructions with different bonds and jointing
15. Do roof work with ceramic and concrete tiles
16. Find information in written and electronic media about what influence social, economic and political forces have for the actual development of the society and the interaction between the development of the society and in the companies including the environmental aspects.
17. Explain the idea of innovation, entrepreneur and self-employment
18. Enter into the health and safety work and the organization on the worksite or in the company
19. Structure, plan and estimate a task with international standards and the relevant consequences for the company

The competences no 1 – 11 cover the Tiler education.

The competences no 1 – 19 cover the Bricklayer education.

The bricklayer education has 5 terms of education at a technical school (5 + 5 + 10 + 10 + 5 weeks)

The tiler education has 3 terms of education at a technical school (5 + 5 + 10 weeks)

The two educations have the same courses for the first 3 terms.

A tiler mainly work with tiles (wall and floor tiles), but also bricklaying with light weight concrete units, repair works, construction of concrete floors and surface treatment with both rough and fine plastering, as well as several types of facing plaster

A bricklayer must be able to deal with large complicated brickwork constructions as well as arches/relieving arches in many different shapes. Plastering and roof tiles and concrete roof tiles are also part of a bricklayer's trade.

A VET programme consists of four types of subjects: Basic, area, special and optional subjects, which are selected and put together by the trade committee.

Basic subjects comprise a combination of skills formation and acquisition of a broad foundation of vocational knowledge, whilst at the same time contributing to the personal development of the trainees, or their comprehension of different societal trends. There are 26 different basic subjects which are provided at different levels (F → A). *Area subjects* are subjects which are common to one or more VET programmes, while *special subjects* are specific to a single VET qualification. Special subjects are subjects at the highest level of a VET programme, and aim to provide the trainee with specific vocational competency. Finally, there are *optional subjects*, which are aimed at meeting the interests of the trainees. Up until 2003, the national regulations stipulated that there had to be a specific distribution among the subjects, but now there is more flexibility - not only within and across VET programmes, but also from trainee to trainee, depending on the goals which have been laid down in their personal education plan.

Pedagogical approaches

One of the main policy concerns has been to reduce the drop-out rate from VET programmes, and to make VET an attractive educational system for students with different profiles.

Following the recommendations of the Danish Globalisation Council and the Committee for Future Validating of VET, a number of measures have been taken to improve completion rates in VET. This involves that students with special needs acquire a mentor and they can also obtain psychological assistance, if needed. Guidance has been intensified. Furthermore all students undergo an assessment of prior learning as the basis for drawing up an individual educational plan for each student. For some students this will result in a structured basic

programme with extensive counselling and opportunities for company placements. Gifted students may choose subjects at higher levels with a view to continuing into tertiary education after having qualified as a skilled bricklayer.

In order to manage the individual pathways for each student, all students talk to a counsellor when they enter a VET programme, and they also undertake an assessment of prior learning in the first weeks. Based on this all students received a personal education plan. Together with a contact teacher (tutor), the students draw up a personal education plan describing the objectives, and how to attain them. When the trainee starts practical training in an enterprise, the latter is also involved in defining overall objectives for the training, in cooperation with the trainee. The enterprise has access to all the relevant parts of the apprentice's personal education plan aimed at improving the collaboration between the apprentice company and the school.

The personal education plan is entered into the national web tool called "*Elevplan*" (Trainee Plan). *Elevplan* contains all the trainees' personal education plans, and electronic logbooks with various papers and notes from the college, etc. A "score-card" is drawn up on the basis of the personal education plan, showing the trainee his/her progress towards reaching the overall objectives for the training. The system shows trainees the various learning activities offered by the colleges. The student can also see his/her timetable and absenteeism rate.

Numbers and types of students by level of qualification

The average age of a bricklayer student is around 23 years (e.g. 23.1 years in 2007). Most recent figures show that 22% of the apprentices are 25 years old or more when they sign an apprentice contract. As the table below shows, and based on a statistical model, 79% of those students that start a vocational qualification as a bricklayer complete the qualification, as the table below shows.

Completion / dropout rates

The table below shows key statistics concerning bricklaying students. In 2007 9002 students in total started the basic programme within the entryway Building and Construction. A little over 1000 students began the main programme as bricklayers leading to 79% of the cohort completing the qualification. For all programmes concerned the majority of drop outs occur while in the basic programme. There is also a tendency that students with low grades from compulsory school seem to have higher drop-out rates.

VET Bricklaying (main part of the programme) – key statistics

	2001	2002	2003	2004	2005	2006	2007
Intake main programme	658	633	650	757	884	1026	1034
Number of dropouts	99	119	112	116	125	181	215
Graduates (completion)	560	520	481	547	515	544	592
Completion rate	80%	83%	84%	80%	80%	76%	79% ⁵

Source: UNI-C, 2009 from: <http://statweb.uni-c.dk/uvmDataWeb/Default.aspx?report=EAK-tilgang-erhudd>.

The numbers above covers students in the main part of the programme. In general, most students drop out during the basic part of the VET programme. The number of dropouts within the basic programme cluster 'Construction and building' was 2,732 in 2007 (percentage?). Since 2008 new measures have been implemented in all institutions that offer upper secondary vocational qualifications in order to reduce drop-out rates. These measures

⁵ Methodological comment: it should be noted that there is a discrepancy between intake, dropouts and estimated number of graduates, as the number of graduates in figures and expressed in % is based on a statistical forecasting estimate.

include a strategic action plan that each college must prepare and based on their particular student population and profile regarding drop-out. Students at risk get a mentor assigned and they may also be offered psychological help, if needed. In the basic programme students are offered short placement schemes as part of guidance and counselling, and in order to start looking for an apprentice place at an earlier stage. Data from the Danish Ministry of Education as well as a full scale survey conducted by the Danish Institute of Technology⁶ show a noticeable reduction in drop-out rates, which could likely be ascribed to the above mentioned measures. Particularly on the part of the trade unions, the step-wise approach to qualification has been under criticised as not offering students a real opportunity to gain a foothold in the labour market. Within the bricklayer qualification, which includes a first step as a tiler, it is argued that there is no demand for labour with such a specific and narrow profile. Furthermore individual courses are offered at different levels to offer students an educational pathway that corresponds to their abilities. If students do not have an apprentice contract at the end of the basic programme, a range of measures are taken to keep the students in education. Since the latest reform students have an education guarantee, not to the specific programme of choice, but within the entry path they have chosen. There are a number of programmes, which the student cannot choose, if they do not have a signed apprentice contract from the start. The educational guarantee implies that they may continue in a school apprentice programme, if all other options have been exhausted.

Extent of modularisation

System developments in the education system have included increased modularisation and outcome- and competence-based curricular description. Thus, reform practices have been moving towards outcome and modular description of curriculum and qualifications – a trend that is also beginning to encompass tertiary education (DTI 2007).⁷ In VET, following a reform of 2000 al vocational education is built up by modules that each student can choose on the basis of a personal educational plan and target measures.

Accreditation of prior learning

At the beginning of any upper secondary VET qualification, the student undergoes a process of recognition of prior learning as the basis for the student's personal educational plan. For example, if the student has undertaken education at a general upper secondary level or has completed a part of a basic year in another VET area, the student will get credit. Adults over 25 with work experience in the construction process may start as an adult apprentice and will typically have a shorter route to an upper secondary qualification due to recognition of prior learning.

Continuing Vocational Education and training (CVET)

Denmark has an ample and comprehensive public supply of continuing education and training. It plays a central role in the overall Danish lifelong learning strategy. Denmark is among the highest ranking countries with respect to participation in continuing education and training within the OECD. The adult education and the adult vocational training was reformed in 2001. The reform also entailed that adults be credited for competencies they have already acquired through the formal education system, informally, through on-the-job training schemes, or through the job. The aim of the reform of the system was to create a coherent and uniform structure and transparency in the basic and further education system without dead-ends, and to create a framework for lifelong learning for the individual with a point of departure in the individual's experiences and educational aspirations. The Legislation was amended in June 2003 (*Legislation 73*) together with the legislation on adult vocational training programmes (*Legislation 74*) following the change of government. In 2007,

⁶ Evaluering af effekter af Velfærdsaftalen (Teknologisk Institut 2009 (Not published)

⁷ Danish Technological Institute, 2007: Danish background report to the OECD, *Recognition of non-formal and informal learning*.

legislation was passed comprising a wider framework regarding the right to assessment of prior learning (APL, RPL).

The transition towards competence-based programmes has taken place in continuing vocational education and training where approximately 140 joint competence descriptions have been drawn up by the social partners, in cooperation with the Danish Ministry of Education (2003). These are divided into approximately 2,800 different continuing vocational education and training modules of typically one week's duration (from 1 day up to some weeks depending on the competences of the learner). The competence descriptions also provide a framework, within which the continuing vocational education and training providers are obliged to adapt their courses to the needs of local commerce and industry in order to meet the needs of the enterprises. Thus, legislation, regulations and guidelines provide framework standards for all VET programmes in Denmark, ensuring nation-wide homogeneity for the provision of VET as well as minimum standards and quality.

The sector uses in particular the labour market training offer (AMU) to qualify labour from other branches and sectors. In 2004 c. 40% of the workforce in building and construction participated in some form of continuing education and training. This figure is well beyond average participation rates at around 60% in Denmark. Employees from larger enterprises participate more frequently in continuing education and training than those coming from small and medium size enterprises, a pattern similar to other sectors. However, when employees from SMEs (Small and medium sized enterprises) participate in continuing education and training, the duration is longer with an average of 11 days compared to 5 days for those from larger enterprises. The figures should though be read with caution as large enterprises may also have a range of other competence building measures in addition to labour market training courses- and may therefore not count in the statistics. Another factor could be that the SMEs do not have the same opportunities to have the public training offer adapted to their needs as the larger enterprises, which also typically have an internal human resources function. Therefore they are obliged to send their workforce to standard courses offered. Approximately 16000 persons or about 10% of the labour force in building and construction participated in CVET in 2004.

In recent years, the focus has been on the development of skills closely related to the workplace and the job functions of the CVET participants. To that end the Ministry of Education financed a large scale 2-year pilot- Competence Centre in learning Regions, particularly to stimulate the capacity among public continuing education and training providers to target SMEs and low skilled in a more efficient manner. The Ministry of Education has also taken measures to improve the guidance of adults through the formation of networks between suppliers.

There is currently political focus on increasing interaction and coherence between IVET and CVET. The VET system as a whole is to become more transparent and more homogeneous in terms of regulations, providers and provision. One of the ways of making the system more coherent is to lay down objectives for the programmes in terms of competences to be acquired, in order to make the system more transparent, and to facilitate the transfer of credit between programmes. In 2007, all initial vocational training programmes came under the same national legislation as part of this policy objective. Since 2007 a number of collective agreements include agreements regarding Continuing Vocational education and training, with funds set aside for training purposes. This also includes the collective agreements for building and construction.

Changes in VET for bricklaying

With the latest revision of the Act for upper secondary vocational education and training, a step 1 was introduced in the bricklayer programme. With a step 1 qualification an individual

can work as qualified tiler. The interest in the step 1 qualification has so far been minimal both from students and employers, and as previously mentioned, it has been quite criticised for lack of relevance in a genuine labour market context.

Relevant bricklaying qualifications

Relevant bricklaying qualifications are: ‘Tiler’ (*Flisemontør*) - step 1; and Bricklayer (*Murer*) - step 2. What are the activities, competences, etc. for these?

For the skilled and unskilled workforce in the building and construction sector a 20 day modularised course has been developed under the labour market programmes. The courses comprise resource management; regulations in the construction sector; customer service; Planning processes and quality assurance; safety; the *sjakbajs* as a team leader.

Composition of the labour force in the construction sector

Skilled (upper secondary qualification)	Tertiary qualification	Unskilled
59%	10%	31%

http://www.danskbyggeri.dk/files/Filbibliotek/Om%20Dansk%20Byggeri/Politikker/DB_arb_markedspolitik.pdf - 2007

Qualification standards /occupational standards

The social partners define the occupational standards as functional competence outcomes. For each of the qualifications offered there is an educational order, which contains descriptions regarding competence outcomes, assessment etc. In upper secondary VET these regulations and guidelines provide an overall framework for the programmes. Since 1991, the requirements relating to management and content of the vocational education programmes have been deregulated to quite a large degree in order to make the provision of VET more flexible and more adaptable to local needs and demands. Since 2000 the vocational education system has undergone several revisions. The latest revision from 2007 introduced a number of changes including a competence based and outcome based orientation of all formal vocational educational qualifications, and all national regulations were revised accordingly. The trade committees were responsible for the revisions.

What is the understanding of and relationship between inputs and outputs?

A shift in paradigm towards learning outcomes began years back – and is partially related to a debate on competence development and recognition of prior learning.⁸ Learning outcomes are already used to a considerable extent in the Danish education system, including VET. In VET framework regulations describe qualifications in terms of competencies (competence objectives). Trade committees and vocational colleges are responsible for ensuring that content and the theoretical and practical teaching are leading to the achievement of the competence outcomes.

For a further discussion concerning the link between input and outputs, please refer to the section on monitoring and quality.

What is the role of formal, informal and non-formal learning processes?

For adults over 25 years, informal learning and non-formal learning may count towards credit, so that an individual can obtain the qualification as a skilled bricklayer within a shorter time period than the average defined duration. All students undergo a process of recognition of prior learning at the start of a programme. This process has a dual purpose: to prepare a personal educational plan for each student, and to ensure that a student gets credit for previous educational activities.

⁸ In Danish *realkompetence* (“real competence”) refers to all forms of learning acquired in formal education systems or as non-formal or informal learning in work life, in liberal adult education, or in private life.

What is the role of curricula?

The curricula framework is highly flexible in duration and content, and is, as described, characterised by an outcome and competence based approach with a high level of autonomy at the institutional level, as long as the provision complies with the competence-based outcomes stipulated in the educational orders for a specific qualification. For further descriptions, please refer to areas of knowledge, subjects, practice.

How are learning outcomes defined and what is their role?

Learning outcomes are defined as competencies specified in the regulation for a specific vocational qualification. The learning outcomes define what a student should be able to do at the end of an upper secondary VET qualification.

What is the assessment process?

In general, the Danish system is based on a principle of “objective” testing and examination, where an external examiner is appointed. The external examiner is a way of preventing bias. The social partners have as mentioned previously, a central role as external assessors in the journeyman’s test at the end of the programme. The journeyman’s test typically consists of a practical and a more theoretical test. The purpose of the journey man’s test is to demonstrate that the student has obtained competences as stipulated in the educational order for the specific qualification. Furthermore students are assessed on an ongoing basis both for guidance purposes and to track progress on a VET main programme. At the end of the basis programme students are assigned a project relevant to the themes and curriculum covered during the basic programme. The project is practical and realistic. If the basic programme is longer than 20 weeks, tests are drawn by lottery in other basic subjects. For a further description of assessment processes and the journeyman’s test, please refer to the section on practical tests.

How are attainment levels specified?

Attainment levels are defined as competencies which correspond to activities a skilled bricklayer is expected to be able to undertake after having completed a VET qualification. Attainment levels are furthermore specified at three levels: beginner, intermediary, advanced.

What is the transferability of the qualification?

The transferability of the qualification will depend upon the combination of subjects a student has chosen. Within the entry path of Building and Construction a student may shift to any of the occupations within the entryway prior to starting the main programme. If a student chooses to shift to another path after the basic programme, he/she will undergo an assessment of prior learning and will on this basis get credit for competence components which are similar in the chosen entry path.

How permeable is the qualification?

The vocational education system builds on the notion of permeability. This is expressed in different ways:

- Permeability for an adult to have his/her competences assessed with a view to taking a faster track to qualification as a skilled worker
- Permeability to take step 2 of the qualification as bricklayer for those students who might chose to take only step 1 of the qualification and then later return to education to complete the programme as bricklayer
- Permeability to continue in tertiary vocational education possibly with some additional single subject courses.

How do qualifications take account of/ provide scope for innovations

All upper secondary VET qualifications comprise training linked to entrepreneurship Furthermore colleges have a substantial autonomy to design training provision relevant to the

student needs and the local labour market. Furthermore the colleges can apply for development grants with a view to stimulate innovations in VET. In the latter years, pilot projects have also been implemented to stimulate integration of entrepreneurship relevant to the specific qualification.

What are related qualifications?

As building processes become more industrialised for some market segments building assembly increases in importance. Both unskilled labour and industry carpenters undertake these work processes.

Is there an APL (Assessment and Recognition of prior learning)⁹ process in place?

As previously discussed, all students undertake a process of recognition of prior learning (APL/RPL) when they start a VET qualification, and students that have obtained competences in other relevant contexts get credited. Within the continuing vocational education and training system individuals have the rights to have their competences assessed up to and including the level of skilled workers an assessment process is free of charge for the individual. A national legislation governs the regulations concerning APL.

What role does certification play?

To improve safety in building and construction the trade committee has implemented a certificate in the scaffolding programme and it has agreed with the schools that offer the qualification that a safety and work environment module is compulsory.

Is the qualification changing?¹⁰

Changes in the sector have till now mainly been gradual incremental innovations.

In a Nanobuild report¹¹ from 2007 (Andersen & Molin 2007) it is concluded that (Danish) nanoscience to a large extent is oriented at applications in industries other than construction. It is therefore currently unlikely to have a significant impact on the construction industry, one of the reasons being that the fragmented nature of the sector limits the uptake and spread of new and advanced technologies.

In a study from 2008 on future competences for the construction sector, the following trends are identified as having a likely impact on future qualification requirements:

- Material technology
- Multi functional intelligent tools
- Modularisation and industrialisation of building processes
- Use of ICT
- Collaborative and communicative competences, lean
- Comprehensive work safety requirements
- Energy and the external environment
- Collaboration within the value process- service orientation.

In the craft part of the construction sector, there have not been many changes. Environmental and energy requirements are likely to impact on future qualification requirements. A number

⁹ APL- recognition of prior learning.

¹¹ Fremtidens Uddannelse til Murer og Chauffør, 2005) Vibe Åkrog - LO Øje for Uddannelse: http://www.lo.dk/upload/LO/Documents/O/OPU12005ny_2642.pdf

of studies estimate that there will likely be a growing convergence between construction occupations, partially driven by demands from consumers for small scale repair functions and partially by industrialisation of the sector.

3. Qualification and Competence

Understanding of competence

How is competence understood and what role does it play in qualifications, VET and in workplace/ labour market practice? e.g. task-based, occupational, procedural, social and personal competence

A new regulative framework for VET has streamlined the descriptions of learning outcomes and applies the concept of ‘competence objectives’ (competencies described as learning objectives). In relation to each competence objective, the skills and knowledge necessary for possessing a specific competence are described. This means that ‘competences’ is seen as an overarching concept, whereas skills and knowledge are perceived as integrated parts/contributing to competences. This conceptual framework is in line with traditional Danish vocational education and training philosophy in which neither ‘skills’ nor ‘knowledge’ are viewed in isolation from a labour market context.

A study from 2008 on future qualification requirements in the sector suggest that overarching key competences linked to such factors as:

- Precision
- Sustainable maintenance and repair
- Practical dimensioning
- Adaptation aligned to customer preferences
- Work environment
- Digital building and planning processes
- Energy – applied to choice of materials and construction solutions

4. Skills, knowledge and competence

How is knowledge understood, and what is the significance of knowledge to competence? e.g. theoretical, practical, occupational, industrial;

How are skills understood, and what is the significance of skills to competence? e.g. cognitive, practical, social;

What is the extent of integration of knowledge, skills and competence?

As mentioned above, ‘competences’ forms the overarching concept in the descriptive framework for vocational education and training, and ‘skills’ and ‘knowledge’ are perceived as integrated parts/contributing to competences. In this perspective competences concerns what the individual is able/capable to do in a labour market context, on the basis of the qualifications acquired i.e. skills and knowledge. Skills and knowledge will be differently defined according to the situation where they are applied.

Overall ‘professional knowledge’ covers:

- a) Facts/empirical knowledge (what),
- b) Theoretical principles & concepts (why),
- c) Practical knowledge in terms of action and problem solving (how).

And ‘professional skills’ concerns the ability to transform knowledge into action and problem solving. In addition, social and personal knowledge and skills are important relevant

parameters in the description of learning outcomes, as well as level of complexity, autonomy and responsibility in working situations.

What are the processes for achieving and assessing competence and its components?

Before students finish the 1st and the 3rd school period in the main programme as bricklayer, they carry out a practical assignment in the areas subjects and the specialised subject covered during the school periods. The local educational committee constituted by the social partners assesses the result with the student and the student's teacher. Both the theoretical and the practical test has to be passed" and students must pass the math test before they complete the "journeyman's test". Competences are defined at three levels Beginner level, routine, advanced level. The outcome based competences for Area and Special subjects are defined accordingly. Basic subject competence levels are described on a scale from A to F.

Are there practical skill tests? What form do these take?

Aside from the on-going assessment, the students complete a journeyman's test prior to the end of a qualification. In latter years student's self assessment has grown in importance; the student's personal education plan forms the point of departure for the test. The practical test comprises one or more assignments linked to area and special subjects the student has taken during the VET programme. The assignment(s) has to be solved with 49 hours and is complimented by a theoretical test relevant to the qualification.

The assignments comprise the following disciplines with a percentage indication of how the test assignment should be composed:

- 1) Bricklaying 40 %.
- 2) Jointing 7 %.
- 3) Plastering 10 %.
- 4) Tiling 22 %.
- 5) Foundation and floors 21 %.

What criteria for competence are applied (e.g. particular bonds, arches etc)?

Beginner's level, routine level and advanced level. Competences are expressed in functional outcomes directly related to typical occupational activities.

Beginner's level. The apprentice can solve a problem and carry out an activity in a known situation or from a known problem or can do a more complicated activity with supervision.

Routine level. The apprentice can plan and carry out a task/activity or solve a problem in routine- and/or known situations and surroundings – alone and in collaboration with others.

Advanced level. The apprentice can asses a problem, plan, solve and carry out a task activity or solve a problem also in a not routine situation – alone and in collaboration with others considering the kind of task.

What transferable skills are identifiable?

The individual qualification profile will vary considerably, so there will also be a considerable variation in identifiable transferable skills. However a number of competences such as planning, measurements, communication, collaboration, use of ICT, and applied work environment skills are examples of cross-occupational competences.

What is the level and scope of responsibility/ autonomy achieved through competence?

A skilled bricklayer employed particularly in micro enterprises will have an extended level of autonomy and responsibility. In general work organisation, practices are characterised by a relatively high level of autonomy for the individual team. In large scale industrialised building

processes, the overall contractual framework and management of this contract predefines the level of autonomy.

5. Utilisation of labour

What is the understanding/ definition of the ‘sector’; the ‘occupation’; the ‘trade’; the ‘job’?

The building and construction sector comprises: demolition, preparation and planning in the pre construction, construction (including, electrical installations, fitting, tiling, insulation, painting, and mounting of windows),¹² contracting both in construction crafts and industrialised processes characterised by a greater use of prefabricated elements (though prefabricated doors, windows etc also play a large role in otherwise craft-oriented construction). 7% of the Danish workforce works in the building and construction sector – corresponding to in total approximately 200,000 persons.

CVET plays a more modest role compared to other sectors of activity. An analysis conducted about patterns of participation in CVET from 2004 shows that about 40% of the workforce has participated in a labour market course within the year, which is somewhat lower than for other sectors. Labour market training courses play a central role in upskilling the workforce to work in the sector.¹³

After years with low levels of unemployment – in mid 2007 it was at 3.5% - these have increased dramatically.¹⁴ By the end of 2009 it is expected that c.165,000 will be employed in the sector a drop from the previous years’ growth. More than 10% of bricklayers are self employed.

Out of the total workforce in the construction sector app. 14,700 are bricklayers. The occupation ‘bricklayer’ comprises: construction, renovation in crafts related to construction and in industrialised construction. The majority of the workforce holds a qualification as skilled bricklayers (65%); 22% are unskilled.¹⁵

From 2012 it is expected that the demands for skilled labour within building and construction will increase. This change is driven by demographics, as in a range of EU countries, as well as factors specific to Denmark.

The following factors are expected to drive a growing demand, according to a recent report from 2009 from the Academy for technical Science (ATV):

- Investments in infrastructure projects for in total DKK 94 billion agreed in a parliamentary decision January 2009;
- Investment in energy renovation in the existing housing complex.¹⁶

¹² http://www.ug.dk/Erhverv.aspx?article_id=arbm-byggeanlaeg#q2

¹³

<http://danskbyggeri.synkronvia.com/files/Filbibliotek/Nyheder%20og%20presse/Barometer/Analyser/2006/Nr.%202/23434.amu%20sikrer%20et%20fleksibelt%20arbejdsmarked.pdf>

¹⁴ <http://www.bygud.dk/userfiles/Efteruddannelse/Fremtidens%20komp-rap-slutvers-150208.pdf>

¹⁵ Dansk Byggeri (2007) Struktur notat om Byggeriet.

<http://www.danskbyggeri.dk/files/Filbibliotek/Økonomi%20og%20politik/Strukturnotat/Strukturnotat%202007.pdf>

¹⁶ http://www.atv.dk/uploads/ATV_Fremtidens_byggeerhverv.pdf

However, the report also notes that the building and construction sector could benefit substantially from measures aimed at improving productivity including investment in education and training for the existing workforce.

What are the scope and type of activities bricklayers undertake in the workplace?

As the majority of bricklayers work as self-employed or in micro enterprises they are expected to be able to plan their own work- in collaboration with other occupations in a construction process, and they are expected to carry out work according to health and safety regulations. As mentioned under the competence outcomes in the main program, planning, quality control and safety are all elements in the compulsory curriculum. The project based and the dual program structure enables that students get plenty of opportunity to apply standards and regulations in practice during the main programme.

A skilled bricklayer has worked with and is experienced in the following disciplines:

- bricklaying techniques;
- flooring and tiling;
- drawings;
- roofing; and
- scaffolding.

Bricklayers work with brickwork walls, roofs, jointing and rendering, facade cladding, tiling and flooring. A skilled bricklayer is able unsupervised to carry out and use ordinary work disciplines, techniques, materials and tools in relation to the fields of work mentioned above and to carry out bricklaying assignments unsupervised in work relating to the construction of new buildings, urban regeneration, restoration and repair of buildings.

What sectors of activity (house building, commercial, repair and maintenance) are they involved in?

Bricklayers are involved in the construction of new houses and building complexes, repairing/renovation and maintenance in Construction & Building in the Public sector, the Industry' and Service sectors, and in restoring historical buildings. Bricklayers also work in large scale construction processes where the use of prefabricated material and components are often used, though industrial carpenters also undertake these activities where assembly plays a major role.

What is the degree of specialisation?

The education and training programme includes two optional special subjects: basic building restoration and advanced building restoration. The level of specialisation depends upon whether the bricklayer works for an SME or in industrialised large scale construction in which prefabricated components are used.

What are the available routes for progression?

Experienced bricklayers may advance to become a foreman, having the responsibility to plan and manage a construction process including meetings with the customer. As in a range of other occupations, a bricklayer may also decide to become entrepreneur and run his/her own company. The construction sector in Denmark has a large number of micro SMEs.

In addition, most programmes qualify for admission to one or more short-cycle professional higher education programmes, and through add-on electives they can grant general access to most short cycle programmes. Thus, the VET bricklayer programmes may be used as a basis for further studies leading to a degree in engineering or Architectural Technology and Construction Management (Bachelor degree).

How mobile is the workforce?

The Building and construction sector educates one out of four apprentices. More than 50% of the skilled workers in the building and construction sector choose at some point or another to work in other branches outside the construction sector. One out of ten actively seeks employment in other sectors. Physical hard work, salary levels and lack of career opportunities are the key factors for leaving the sector.

A large-scale survey with 6,500 respondents from the building and construction sector from 2006 shows that, among the bricklayers surveyed, 33% worked in the building and construction sector, 24% worked in the sector but not as bricklayers any longer, and 43% no longer worked in the sector.¹⁷ 13% of the surveyed bricklayers were at the time of the survey looking for a new job, 25% had seriously considered looking for a new job, 25% had to some extent considered looking for a new job, and 38% had not considered looking for a new job.

What is the extent of migrant labour used? Where do migrants come from? In which areas are they employed?

The employer organisation for the Danish Building and Construction sector estimates that in 2007 10,000 foreigners worked in the construction sector. About 6,000 of these worked in Danish construction companies; 3,000 were from Germany, and another 3,000 came from Eastern European countries. In addition 4,000 worked in temporary jobs in Denmark sourced by foreign companies.¹⁸

FAOS, a labour market research group from Copenhagen University, estimated that approximately 3,500 foreign workers worked with work permits in the building and construction sector in 2007, an additional 1,500 worked without work permits, and approximately 1100 with outplacement contracts, of which 500 as temporary construction workers and approximately 500 with other forms of contracts. These figures vary somewhat from the figures from the Employers Organisation. Furthermore it is estimated that an additional number of workers from the new member states undertake undeclared work. In a survey among construction companies, 84 % of the companies saw a number of advantages from employing workers from the New Member States. Factors mentioned were their willingness to undertake work and that east European workers are more flexible with regard to the organisation of working time and their willingness to undertake tasks that may involve activities related to different occupational profiles.¹⁹

Expectations to the future use of labour from Eastern Europe in the Construction Sector

Will you in the future use labour from Eastern Europe?	Temporary work force	Sub-suppliers	Regular Employment
No, not at all	38.5%	18.2%	4.3%
Do not know, maybe	28.2%	13.6%	14.9%
Yes, in periods with a lot of work	28.2%	36.4%	27.9%
Yes, as part of the regular workforce	5.1%	31.8%	52.9%

Source: FAOS 2009

¹⁷ Zaperla 2006

http://www.danskbyggeri.dk/files/Filbibliotek/Nyheder%20og%20presse/Barometer/Analyser/23781.zaperla_arbejdskraft.pdf

¹⁸ http://www.danskbyggeri.dk/files/Filbibliotek/Om%20Dansk%20Byggeri/Politikker/DB_arb_markedspolitik.pdf

¹⁹ Jens Arnholtz Hansen og Søren Kaj Andersen, FAOS Forskningsnotat 083, 2007

What related occupations are there? Do bricklayers ever fulfil some of the work involved?

In more industrialised construction processes, industrial carpenters undertake bricklayer work and vice versa. In more craft-oriented building processes this is less common.

What is the process of entry/recruitment/access to the occupation?

In the large entrepreneur companies workers are mostly recruited through formal channels. In the SMEs that constitute the majority of bricklayer companies employees are typically recruited through personal contacts.

According to AER the employment frequency for bricklayers was

In 2002: 74%

In 2003: 78%

In 2004: 79%

In 2005: 81%

In 2006: 80%

Since the financial crisis unemployment levels has increased dramatically.

What health and safety risks are associated with bricklaying?

In 2006, the Danish Working Environment Authority took an initiative in partnership with the social partners to discuss a plan to strengthen measures aimed at reducing the number of accidents and to improving the working environment in the sector. This has also had an impact on the revision of the curriculum. Heavy lifts, hazardous chemicals, noise, dust, vibrating tools and falling off from scaffolds are the worse health and safety risks for a bricklayer. The union confederation for building and construction has extensive information about health and safety.²⁰

What is the usual type of employer (main contractor, subcontractor, labour-only subcontractor)?

On the basis of a signed contract, the contractor specifies the operational tasks.

The work is mostly carried out by individuals or by self –managing teams that organise for the right equipment and materials to be available at the construction site. The team also forms the organisational context for the occupational training of the apprentice and for new members of a team.

Collaboration with teams from other professions occurs mainly for the purposes of planning and coordinating activities within a large contract.

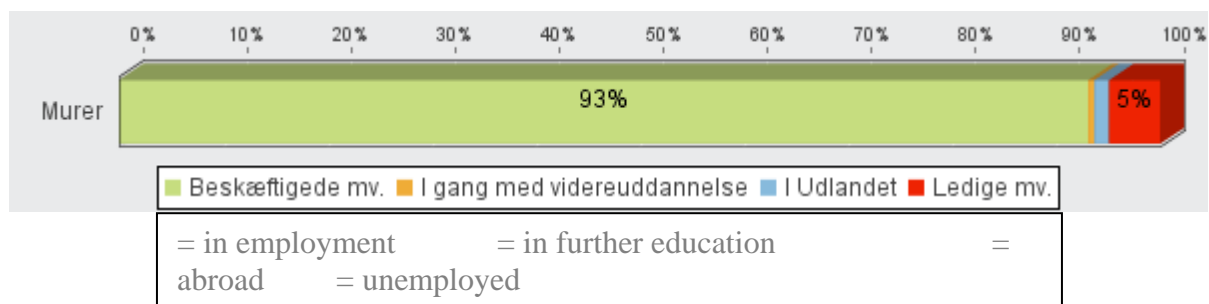
Employment status for bricklayers

Bricklayers are employed in both the public and the private sector. The table on the employment of bricklayers in companies by size of the company shows that the majority are employed in SMEs

Number of employees in the company	1	2-9	10-49	49-99	100+
The share of bricklayers by company size	8.3%	39.1%	42.7%	6.6%	3.4%

The figure below shows the employment situation for bricklayers based on data from 2006.

²⁰ www.bar-ba.dk



As the figure shows, 93% of the skilled bricklayers were in jobs in 2006, 1% worked abroad, 1% continued in tertiary education, and 5% were unemployed/outside the labour force for other reasons. The high employment level reflects the growth in the construction sector in 2006 and 2007. In 2008, the boom in the construction sector, leading to increased unemployment in 2008 and 2009. By the end of 2008, 14.8 % of the bricklayers, organised in the trade union 3F, were unemployed. Approximately 50 % of the newly qualified bricklayers entered directly into unemployment with unemployment benefits, according to 3F (April 2009). However, from 2012 the Academy for Technical Science expects that there will be a shortage of qualified bricklayers.

What tools and equipment are required to be used by the bricklayer? Who provides these?

The apprentice is provided with tools from the apprentice company. The skilled bricklayer owns the basic tools.

What changes are observable in the occupation and the activities involved?

In industrialised building, prefabricated components are used and industrialised carpenters tend to replace bricklayers partially or fully. For bricklayers that have their own company administrative requirements have grown and have become more IT intensive. A Danish study (New Insight 2008) about the future qualification requirements in the construction sector estimates that there will be an increase in the use of prefabricated materials, and the composition of materials will likely change. Furthermore the study points to a greater deal of industrialisation in building processes and increased demands for personal qualifications linked to such issues as meeting quality requirements and understanding and meeting customer requirements.

6. Currency of qualification

What is the value of qualifications/ skills on the labour market?

The bricklayer qualification is a nationally recognised qualification as such a qualified bricklayer can work in both craft oriented and more industrialised construction activities.

What value does the qualification have for entry to further/higher education?

An upper secondary qualification will in principle give access to tertiary vocational qualification. Specific access regulations will depend upon the combination of subjects a student has undertaken and at which level these subjects have been taken.

How important is the bricklayer as an occupation in the sector?

Employment in the building and construction sector constituted 171,847 in the fourth quarter of 2008. Within the sector, bricklaying is one of the smaller occupations compared to carpenters and electricians. In the fourth quarter of 2008, 12,236 were employed as

bricklayers. From the third quarter of 2008 to the fourth quarter of 2008 the decrease in employment of bricklayers was 6.3%.²¹

What are the proportions of workers holding the qualification?

Approximately 14,000 are skilled as bricklayers, though in the years to come a growing number are likely to retire.

What is the profile of workers with bricklaying qualifications

In 2008, every fourth employee was an apprentice. Data from 3F has previously shown that approximately one-third of the labour force is more than 50 years old.²²

Is there a link between qualifications/skills and pay? (e.g. through collective agreements?)

The collective agreements stipulate a minimum salary for a skilled bricklayer

What is the basis of the wage for bricklayers paid (e.g. output/performance, time)?

Bricklayers working in the construction industry are paid piecework under the *Akkord* system, according to performance. Bricklayers working in crafts are paid by hourly wages.

The hourly wage is DKK 175-185 per hour. There are a number of additional regulations if the bricklayer works for example overtime or during weekends. The average hourly salary for a bricklayer in Copenhagen is DKK 204.56 (approximately €17.20) plus supplements for irregular hours.

What are the average weekly earnings of the bricklayer? How does this compare with related skilled occupations in the sector (e.g. carpenter)?

The basic hourly wage for a bricklayer is DKK 129.40 per hour, a little higher than for carpenters. Furthermore the collective agreements contain a number of specific regulations linked to overtime, working on holidays etc.²³

Are there any labour rights associated with the qualification?

A skilled bricklayer who has employment insurance has the rights to receive unemployment benefits. Furthermore skilled bricklayers who are organised have the rights to participate in continuing education and training. After 3 months of employment the employee has the rights to up to two weeks of training by agreement with the employer.

²¹ http://www.bm.dk/graphics/Dokumenter/Uge-reviews/2009/Konjunktur_og_arbejdsmarked_uge_3.pdf

²² <http://www.clr-news.org/CLR/CLRdenmark%20Rapport%202008.pdf>

²³

<http://www.danskbyggeri.dk/medlemsr%c3%a5dgivning/overenskomst+og+ans%c3%a6ttelse/overenskomster+og+love/overenskomster+2007/overenskomster+med+tib>