

# CONDITIONS FOR SELF CONTROL – A CERTIFICATION SCHEME FOR BUILDING CONTROL

**DR. IR. HENK J. VISSCHER AND DR. FRITS M. MEIJER**

OTB Research Institute for Housing, Urban and Mobility Studies; Delft University of Technology, The Netherlands

## **Abstract**

*The traditional systems of building control, executed by local authorities within the building permit procedures are more and more replaced by systems in which private organisations control construction works on compliance with the technical requirements. The latest development in this respect is the introduction of self-control by architects and other organisations within the building industry. In various European countries we see a development towards more transparency. The building codes and technical requirements are formulated in performance terms and private companies within the industry carry out building control. This approach stimulates innovation and equivalence for people and companies that want to realise quality and efficient and effective procedures. The paper gives an actual insight in recent European developments and presents an outline of a draft guideline for the certification of architects and technical advisors for the process of checking building plans on compliance with the performance requirements of the Dutch Building Decree. The certified plan checking will soon function as an alternative for the traditional local authorities building control.*

## **Keywords**

Building control, self-control, certification, building regulations, performance requirements

## **INTRODUCTION**

Traditionally, in the Netherlands, technical requirements for buildings were formulated in local by-laws and therefore differed from municipality to municipality. In 1992 the technical requirements were brought together in the national Building Decree. The Building Decree contains performance requirements with reference to determination methods and limit values. The changes in the technical regulations however, have brought about no change in the organisation of building control. The Netherlands still has a traditional form of building control performed by local authorities.

During the last decade the regulatory burden caused by the building regulations for all the organisations that are involved in the building process has been high on the agenda of the responsible secretary of state. Deregulation has been the policy. Time and again the topics of technical requirements of the Building Regulations have been screened on their necessity.

Besides elimination, the attention has been focused on a simplification of the requirements and the shortening of the permit procedures. The category of small building activities that are exempt from permit and control procedures has been enlarged. More recently also attention is paid to the way the technical control is organised.

Several developments have led to a situation in which it has become very difficult for local authorities to fulfil their building control tasks in an appropriate way. One of the changes in the regulations in the 1990's was the introduction of time limits for the building permit procedures. This led to a shift of intention from technical control to administrative and juridical handling of the applications (Meijer c.s., 1995). Despite the intentions of deregulation we have seen an opposite development in the Netherlands: more requirements and a growing complexity. The relatively small local departments of building control have a problem in keeping the knowledge accurate and up-to-date. An investigation by the Ministry of Housing last year led to the conclusion that the quality of local authority building control should be improved.

Two years ago the Netherlands was startled up by two big disasters. An explosion in a fireworks storage warehouse which ruined a whole living area in Enschede and a fire in a pub at a new year's party caused many casualties. In both occasions the question rose if the authorities had fulfilled their supervision tasks sufficiently in protecting the public safety. These accidents have put the building control case more prominent on the policy agenda. The emphasis in the discussions of alternative forms of building control shifted from more efficient, to more effective building control.

## **BUILDING CONTROL IN SOME EUROPEAN COUNTRIES**

International comparative research (Visscher, Meijer, 1997; Institute of building control, 1997; Meijer and Visscher, 1998) has shown a broad variety in systems for technical building control. Most remarkable difference to the Dutch system is the role that private organisations play in the systems of most of the other West-European countries. In this chapter we will (briefly) describe the systems of Belgium, France, Germany, England, Norway and Sweden. Belgium and France have strong liability regulations. This led in these countries to an important role for private bureau's in the provision of adequate quality safeguards as the foundation for insurance. Whether, and to what extent, checks take place depends mainly on financial considerations. Consequently, the technical control on individual residential constructions is lacking.

In Germany recognised private building control bureau's (Prüfingenieure) play an important role. The municipalities contract out the technical building control. This system can be characterised by high quality control for relatively high costs. Germany has also introduced the concept of self control for small buildings (Mönnig, 1993).

The English system of the Approved Inspectors can be seen as certification of persons (although whole organisations can also be designated as an Approved Inspector). The Approved Inspectors operate in competition with the local building control authorities. The option of what is called 'self certification' of architects to verify their own plans has been taken into consideration (Department for Transport, Local Government and the Regions, 1999; Construction Industry Council, 2001).

The most far-reaching form of the privatisation of technical building control can be found in Norway and Sweden. Since a few years technical building control has ceased to be the task of the local authorities. Now, applicants for a building permit are responsible for arranging adequate control. The design, engineering and construction companies can perform self-control, or an external bureau may be engaged. The municipality still grants the building

permits, carries out checks on the aspects associated with a location (zoning plans and external appearance) and evaluates the proposed 'control plan'. In both countries clear conclusions have been drawn from the observation that the (usually small) municipalities are barely able to carry out this task any more; self-control should therefore be rewarded and promoted. At first there was some resistance and there were doubts whether the building sector could be burdened with the demand to provide their own control processes. The first experiences however, seem to be positive. The main disadvantage of the approach in these countries is that the system of self-control is not organised and recognised in a uniform way (Gustafson, 1995; Grønvold, 1994, Boverket, 1996).

The examples of Norway and Sweden show that tasks regulated by public law can be carried out by private organisations. There are various forms of privatisation of the control:

- by disposing control completely,
- by contracting control out to other private organisations or by recognition of private alternatives or,
- by making private organisations responsible for the provision of adequate control.

This observation raises the question which model provides the most effective and efficient building control? This question is not easy to be answered. The conditions of the regulatory framework and the characteristics of the building processes in the various countries create obstacles for qualitative comparisons. A system cannot easily be transferred from one country to another, but the examples can provide ideas and inspiration for alternative approaches. In England the introduction of the Approved Inspectors as an alternative for local authority building control has had a positive effect on the quality and efficiency of building control. Self-certification however is seen nowadays as a possibility for more efficiency. The shift of the responsibility of control to the private sector in Norway and Sweden has caused a somewhat chaotic situation in the building sector, but the change has also given a big push to the development of quality assurance of the companies.

## **CERTIFICATION IN THE DUTCH BUILDING SECTOR**

Dutch Government policy is directed to the stimulation of the instruments of normalisation and certification. Wherever possible, the government recognises and rewards private law certification as an alternative to public testing and controls. Self-regulation and certification are seen as important instruments in the achievement of further deregulation and the reduction of management costs and the pressure of regulations on citizens and companies. The development of a well functioning, extensive certification system is also considered to be of importance for the international, particularly the European, competitive position. Especially accreditation is seen as important to guarantee the quality and recognition of certificates (Ministerie van Economische Zaken, 1996).

We currently see a very broad application of quality care instruments emanating from the production industry. Quality care procedures are also applied in the service industry and public sectors. Quality care can in fact be divided into 'the improvement of business management' and 'the monitoring and making demonstrable of the quality of the production and products'. Quality care procedures were developed later in the building industry than in other branches. The instruments developed were initially applied to series of production processes, often in a factory. The building industry is characteristically project-oriented and is not bound to a fixed location. Nevertheless, in the 1960's a process was started towards the central testing of building materials in the Netherlands. The initiative came from the local departments of building control. That is

how attestation and product certificates came about. In the beginning there was a multitude of certificates, reports and testimonies. Gradually (and in parallel with the developments in the building regulations) a development towards a more uniform and transparent structure was brought about.

Work has also been done to harmonise private law certificates and public law regulations. With the introduction of the revised Housing Act and the Building Decree in 1992, public status was granted to the 'recognised' certificates. This mainly applies to product certificates and agrément certificates.

Product certification in the building industry has been well developed, while process certification still lags far behind. Quality system certification (ISO 9000) in the building sector is also very popular, in particular with medium sized and large building companies. Much work has been done through the branch organisations in the building sector on the development of models that translate the abstract formulations of the NEN-EN-ISO-9000 norms into practical applications for the various branches in the building process.

The next step is certification based on an ISO norm according to a specific application guideline (assessment guideline or AGL). This would allow a certificate to acquire a more specialised significance. An important component of these models comprises the control plans that have to be set up for each project. This structure makes the application to building control possible.

Process certificates are seen as the most appropriate instrument for assuring control and inspection procedures on compliance with public requirements. Process certificates can express specific qualities of the control procedures.

## **CERTIFIED BUILDING CONTROL**

There are of course various possibilities for the organisation of building control (Visscher, 2000). For alternative control systems carried out by government bodies we can envisage regionally bundled services for building control, or a newly established national implementation bureau. We may also consider alternatives involving regulation by private organisations in the building sector like in other European countries.

We elaborate here the possibility for private law assurance of compliance by accredited certification. Certification is oriented towards monitoring the quality of products, processes or quality systems. Certification is based on a norm or an assessment guideline in which the requirements are formulated. Accredited certification institutions grant certificates to organisations that have demonstrated to meet these requirements. The certification institutions maintain supervision on the certificate holders. The Dutch Council for Accreditation takes care of the admission and the continuous supervision on the certification authorities.

The extent of the confidence generated by certification depends on a whole series of aspects. First of all it is of fundamental importance that the assessment basis is clear. This applies from top to bottom: throughout supervision, control, inspection and monitoring of the work processes. Furthermore it is eminent that the assessment is carried out in an adequate manner, that there are clear sanctions which can be applied should the requirements not be met, and that if necessary these sanctions will indeed be applied. Should one of these components no longer be satisfactory, the quality of the certification could no longer be guaranteed and confidence of the parties involved would fall rapidly.

The question of what kind of certification should be implemented as an alternative for the current practice of the local departments of building control, is not a simple one to answer. Because of the great diversity of the organisation of building processes a wide variety of organisations play various roles in the building process. It is feasible that these organisations

want to carry out (some of) the testing and supervision procedures. These procedures will cover both internal and external control processes. Some of the control processes can be integrated into quality systems. However, certification of all these processes and systems is possible and could be realised in practice in due course.

In 1998 we carried out an international comparative study that explored alternatives for the current regulation of the building permit procedure (Visscher, Meijer, 1997). The responsible secretary of state adopted one of the recommendations of that study: the introduction of process certification of testing building plans on compliance with the requirements of the Building Decree. Private organisations could be certified to perform technical building control in the design phase. This idea has been developed since then and resulted in the summer of 2002 in a draft assessment guideline. The next step is an experiment in which this new instrument will be tested. Finally in 2004 it could be implemented in the building sector and the building regulations.

## **ASSESSMENT GUIDELINE**

A draft assessment guideline (AGL) for a process certificate for testing building permit applications on compliance with the requirements of the Building Decree has been completed in the summer of 2002. It has been developed by the OTB Research Institute for Housing, Urban and Mobility Studies in collaboration with SWK Certification commissioned by the Ministry of Housing, Physical Planning and Environment.

For this project a working group of fourteen experts on the Building Decree and building control, being representatives of some important organisations in the building sector (architects, technical advisors, contractors, local building control, ministry of housing, normalisation and certification institutions) have discussed proposals in a long series of meetings and agreed on the final draft of the AGL. Besides that group, another 40 to 50 representatives of all interest groups in the building sector have been asked to give remarks on a few versions of the draft AGL. After all, this private law instrument should function to assure public law requirements. This alternative only can function if it is regarded to be reliable and if it is broadly accepted.

### **The content**

It is open to any organisation or individual that can meet with the requirements of the AGL to acquire the certificate. Practically this will probably be engineering companies, architects offices or construction firms that develop their own construction plans. Local building control authorities are also eligible for certification. The AGL concerns the control on the observance of all the requirements of the Building Decree in every conceivable building. For a few 'open ends' of the Building Decree the certified plan tester should return to the local building control authorities to ask for a decision.

Companies can be certified for the whole Building Decree, but certification for one or more parts of the Building Decree is also possible. We have specified the following scopes:

- A. General subjects (no specific calculations required) and co-ordination.
- B. Structural safety.
- C. Fire safety.
- D. Building physics.
- E. Installations.
- F. Environment.

Co-ordination concerns the contacts with all parties involved, including the local authorities for the permit procedure, the verification that all aspects are covered and that all aspects are controlled on the basis of the same building plan specifications.

The quality of the certified test procedure is assured by a series of requirements.

First of all there are some general requirements to the certificate holder (a company) that controls its independence. Then there are requirements about the qualifications of the responsible controllers. These are specified for every scope and ask for general (technical) education and mostly additional specific courses. All specialists have to keep up with the developments in their profession and follow courses if this is required by the change in regulations and building techniques.

The AGL further contains requirements for the quality system of the certified organisations. They have to work out their system in a quality book. Most important are the control procedures, they have to be worked out in detail. The AGL contains requirements for a series of about twenty specific procedures. There is a general control procedure that concerns subjects that can be checked on drawing (presence and dimensions). Other procedures concern all the specific calculations (structure, building physics).

Another important feature of the AGL is a format for a detailed control report for every individual building plan. In this report all the requirements of the Building Decree are listed.

The certified controllers must indicate in this report:

- which requirements are relevant for the project,
- on which building components the requirements have effect,
- how the design complies with the requirement,
- which drawings and calculations were used,
- which control procedure has been used,
- which specialist carried out the control on which date and the result of the test and
- were appropriate: some remarks for specific attention for the site inspection.

If organisations want to be certified they apply for a certificate and will have to organise themselves in a way that they can meet the requirements. In the admittance procedure the certification institute checks the quality book on compliance of the requirements with the AGL. Finally the candidate-organisations have to carry out a kind of admittance exam in the form of controlling a construction plan. Other (certified) Building Decree-test organisations referee the quality of control of the candidates.

### **The building permit procedure**

In the case of certified building control the applicant for a building permit submits an application in outline. The local building control authority then grants a decision on the basis of a check against the zoning plan, architectural appearance and the notice that certified control for the Building Decree aspects will take place. The certified controller has to send in a final declaration that the control has been successfully completed. The local authorities have to accept the certified Building Decree test. The final report has to be send in to the local authorities since it can also contain remarks for specific attention for the site inspection.

## **EFFECTS OF IMPLEMENTATION**

The introduction of certified Building Decree control as an alternative for local authority building control could have effects on the completion time, quality and costs.

Prospects are good for the effect on the factor time. Certified control can take place close to the design process so that any deviations discovered can be dealt with quickly.

We can also be positive about the effects on quality. Certified control offers every opportunity for quality that is systematic, complete and good. However, quality can come under pressure because the factors costs and time. A severe role of the certification institutions is essential. As an indirect consequence the pressure on the organisations and companies in the building sector to develop quality systems could increase.

The cost aspect is the most difficult effect to predict. We must first await the consequences emanating from the development of the determination of the municipal fees. What discount should applicants who submit a certified control receive from the municipality and how would that relate to the costs of the control? Certified control should be carried out more completely than the current average municipal control. On the other hand there are also advantages of scale to be gained for specialised bureau. A saving in cost can be expected from self-control even though the certification has to be paid for.

The consequences for the designers, advisors and building companies are difficult to predict. These consequences will be particularly noticeable if self-control comes into effect. The advantages of scale for the larger companies will provide them with more opportunities to develop new working methods and to meet the development costs. On the other hand there are also opportunities for smaller companies to develop low threshold and less costly certificates for straightforward building projects. It might well be necessary to support the smaller building companies in the development of tailor-made instruments. These organisations perceive the current development not as deregulation, but as privatisation and re-regulation: the transfer of government tasks to the business community.

Effects can also be expected for local authority building control. Some of the technical control activities shall be discontinued. The expectation that this could lead to a better performance on the remaining tasks seems to be overoptimistic. Should some of the tasks be discontinued, that would also effect the cost of the available (financial) resources and the (personal) capacity. As a result it could become more difficult to maintain the current quality level.

We can already see in current practice how technical control is increasingly contracted out to private companies. We expect this development to persevere if the certified test acquires a reasonable market share. It could well be that local authority building control will contract out to certified organisations.

Ideas for next steps in re-regulation of building control are already made at the ministry of Housing: 'certified site inspection', 'certified small building activities' and 'certified periodical inspections of buildings (fire safety, structural safety, installations)'.

In the coming months an experiment project for testing the draft AGL for the Building Decree-test will be set up and carried out. This experiment project will deliver more information and answers on the question if certified building control can lead to a more effective and efficient form of building control and the (intentional or unintentional) side-effects.

## **REFERENCES**

Boverket, *Boken om Lov, Tillsyn och Kontroll, bilage 4 (summary in English)*, Karlskrona, 1996.

Bundesministerium für Raumordnung, Bauwesen und Städtebau, *Das öffentliche Baurecht der Bundesrepublik Deutschland*, Bonn, 1991.

Construction Industry Council, *How to become an Approved Inspector*. (published at: [www.cic.org.uk/cicair](http://www.cic.org.uk/cicair)), 2001.

Department of the Environment, *The Building Regulations 1991*, London, 1991.

Department for Transport, Local Government and the Regions (DTLR), *Taking Forward Self Certification* (published at: [www.dtlr.gov.uk](http://www.dtlr.gov.uk)), 1999.

Economic Commission for Europe, *Building regulations in ECE countries*, Geneva, 1985.

Grønvold, Ebbe, *Private quality assurance in public building control 'Documented Self Inspection'*, National Office of Building Technology and Administration, Oslo, 1994.

Gustafsson, Annika, *Changing the Swedish Building Law - a more European Control System*, Stockholm, 1995.

Institute of Building Control, *Review of European Building Regulations and Technical Provisions*, Epsom Surrey, 1997.

Ministerie van Economische Zaken, *MDW-rapport Normalisatie en certificatie*, Den Haag, 1996.

Meijer, F.M., H.J. Quist, H. Priemus, H.B. Winter, A.G. Bregman and D.A. Lubach, *De nieuwe bouwplanprocedure: verwachtingen en eerste ervaringen van de diensten bouw- en woningtoezicht*, Delft University Press, Delft, 1994.

Meijer, F.M., H.J. Quist, H. Priemus, H.B. Winter, A.G. Bregman and D.A. Lubach, *De nieuwe bouwplanprocedure: ervaringen op lokaal niveau*, Delft University Press, Delft, 1995.

Meijer, F. and H. Visscher, *The deregulation of building controls: a comparison of Dutch and other European systems*, Environment and Planning B: Planning and Design, volume 25, p. 617-629, Pion, London, 1998.

Mönnig, Fritz, *Building Control in Germany*, in: Betonwerk +Fertigteil-technik, heft 1/1993, Bauverlag GmbH, Wiesbaden, 1993.

Sheridan, L., *A comparative Study of the Control and Promotion of Quality in Housing in Europe (part I and II)*, Delft University Press, Delft, 2000.

Stichting Bouwkwiteit en Stichting Bouwresearch, *Praktijkhandboek bouwkwiteit*, Amsterdam (WEKA), 1998.

Visscher, H.J., *Bouwtoezicht en kwaliteitszorg; een verkenning van alternatieven voor de technische controles door het gemeentelijk bouwtoezicht*, Delft University Press, Delft, 2000.

Visscher, H.J. with F. Meijer, *Bouwregelgeving in zeven West-Europese landen*, Delft University Press, Delft, 1997