

Guidance for structural engineers

-Background and purpose

The Accreditation Scheme for Structural Engineers was set up in 1958 by the former Society of Danish Engineers and Ingeniør-Sammenslutningen (now together the Danish Society of Engineers or IDA) and the then Ministry of Housing.

The background to this was the dramatic growth in residential construction seen in the 1950s. This growth led to greater pressure on the municipal building authorities, which at that time did not have the requisite technical capacity to cope with the many building cases. The result was slow case processing and a long waiting time for building permits.

The purpose of the scheme is to make the authorities' work easier, so that building cases are processed more quickly without any reduction in the quality of the structural documentation for the projects. Under the scheme, the authorities do not need to check standard house building designs when the project has been prepared and signed off by an accredited structural engineer.

Part 1, section 4-5 of the Danish Building Regulations 2008 (BR 08) states that the municipal council must order that calculations relating to the load-bearing constructions be certified by a structural engineer who is accredited under the rules set out in Appendix 3.

The scheme is voluntary for the municipalities and not all of them have joined.

Once a year all the affiliated municipalities receive a complete and updated list of accredited structural engineers; the list is also available on the IDA's website: www.ida.dk. This list contains each engineer's name, position, year of qualification and specialism, place of employment and the dates of their accreditation and renewal.

Responsibility for the scheme lies with the IDA in Denmark's rules for the Accreditation Scheme for Structural Engineers, see Appendix 3 in BR 08.

Administration of the scheme

The day-to-day administration is dealt with by the Danish Society of Engineers (IDA).

Application forms and information on the scheme can be obtained by contacting:

Danish Society of Engineers (IDA)

Kalvebod Brygge 31-33

DK-1780 Copenhagen V

Denmark

F.A.O.: Accreditation Scheme for Structural Engineers

Tel.: +45 33 18 48 48, Fax +45 33 18 48 89

The application will be processed by the Structural Engineer Accreditation Committee.

This committee consists of nine members who are selected as follows:

Three members are nominated by the Danish Enterprise and Construction Authority (DEACA) from among the employees of relevant research and educational establishments.

Two members are nominated by the Danish Association of Consulting Engineers (FRI).

Two members are nominated by Local Government Denmark (KL).

One member is nominated by Statikerforeningen (the Danish Society of Structural Engineers).

One member is nominated by the Danish Construction Association.

The Accreditation Committee elects a chairman from among its members.

The committee meets approximately four times a year and at these meetings deals with the applications for accreditation and renewal that have been received.

Who is the scheme aimed at?

Accreditation is only given to individuals, not to companies.

Accreditation can be sought by individuals whose daily work involves the project management of load-bearing structures and who generally supervise such structures within residential, institutional or industrial construction. The scheme particularly applies to those individuals who establish design basis and the static principles, and who therefore maintain the general structural overview of the projects.

If someone primarily works with subproject management of structures or with administration or management, they should not apply for accreditation.

The applicants are not subject to any special training requirements, but if they are not a civil or college engineer specialising in building technology or with an equivalent foreign qualification, the committee may request that the applicant sit a special test.

Applying for accreditation

Information, rules and circulars can be obtained by contacting IDA. Application forms are found at the back of this guidance.

The following information must be submitted when applying for accreditation, see also BR 08, Appendix 3, section 3:

A completed and signed application form which contains, amongst other things, a declaration that the applicant accepts the provisions of the scheme, including the special rules for the withdrawal of accreditation and for liability insurance.

A project prepared independently by the applicant within the fields of residential, institutional or industrial construction.

The requirements for the project are set out in more detail in the following section.

A summary report which presents the project's primary structural content.

A declaration from the applicant regarding which building cases he has submitted to the authorities over a period of at least three years.

Documentation that for at least three years the applicant has been engaged in performing static calculations and has worked independently and responsibly for at least one year.

Reviewing application projects is a time-consuming task. Depending on the number of applications which the committee has to review at any given time, a processing time of approximately six months should normally be allowed.

Requirements for the project

The basis for the assessment of an application for accreditation is a recent building project which must have been prepared personally by the applicant. The project must relate to residential, institutional or industrial construction.

The project selected should be suitable for giving an impression of the applicant's structural engineering skills and abilities.

The project must therefore contain a structured calculation of overhead-underground junction loads and also include different static disciplines, such as strength and stiffness evaluations for horizontal and vertical loading, as well as calculations for different building components, such as pillars, beams, slabs, plates, etc. It would also be preferable for the project to contain static and, to the extent required, fire technical calculations for various materials, such as concrete, steel, brickwork, wood, etc.

The project submitted must contain static calculations, as a guide they should contain the technical documentation specified in Appendix 4 to BR 08.

The project should also cover an evaluation of geotechnical conditions, including the design of foundations.

The project must be supplemented with a summary report which presents the project's primary structural content. The summary report must describe the project's primary structural engineering system and also provide a description of load routes from their vulnerable points to their entry into a firm foundation.

The documentation must be in order and easy to understand. It must be of such a standard that at an arbitrary time after being archived the project can be understood without any problems. The committee therefore places great importance on the format of the documentation. The committee believes that clear, complete and easy to understand documentation is a professional requirement.

Carelessly or poorly documented projects will normally be returned without being processed. The documentation must not look like rough calculations.

Those who will be reviewing the project are naturally interested in it appearing to be accessible and easy to understand. It must be easy to understand the drawings and the calculations.

This means that summary drawings must accompany them, and also architect drawings to the extent that they are relevant to structural understanding.

In some cases the applicant has not prepared the entire project themselves. In such cases it must be made clear which parts of the project the applicant is responsible for and which have been prepared by other parties.

If the project includes pre-fabricated components calculated by the supplier, it must be made clear in the documentation that the components' structural capacities have been considered during actual use, and that there has been structural coordination between the supplier projects and the applicant's project.

Calculations are often performed using IT programs. In such cases the prerequisites and calculation methods of these programs must be made clear, e.g. brief instructions for use can be enclosed. It must be clear that the actual applications fall within the scope of the programs. It is not necessary to submit the program documentation. However, any program printouts must contain all input data and both input and output data must use units of measurement. The results must be checked using suitable control calculations, and there must be an assessment of the feasibility of the results. The committee may also require that these calculations be carried out manually.

The project material submitted must, in relation to the load-bearing structures, cover the following: summary report, project description, geotechnical reports, work descriptions, lists of drawings, architect drawings (outlines), engineering drawings and static calculations with reference to norms, standards and literature.

Liability insurance once accreditation has been awarded

If the committee awards the applicant accreditation, the secretariat will inform the applicant of this. Two declarations of insurance cover are forwarded concurrently, and the submitted project returned.

The declarations of insurance cover must be completed by the accredited structural engineer, who must then send them to the insurance company with which the liability insurance policy has been taken out for endorsement. After endorsing these, the company forwards one form to the secretariat as documentation that the requisite liability insurance policy has been taken out.

Liability insurance is mandatory and a condition for retaining accreditation. If the insurance lapses, the accreditation as a structural engineer in principle lapses at the same time.

As an accredited structural engineer, you must be covered by a liability insurance policy for damage to property in connection with pursuing the profession of consulting engineer. The sum insured for damage to property must be equivalent to that of the compulsory collective liability insurance for consulting engineers determined by FRI (Association of Consulting Engineers).

It is not necessary to be a member of FRI or use FRI's insurance. Once the declaration of insurance cover has been received by the secretariat, you will be added to the list of accredited structural engineers. Once a year new lists are distributed to all municipalities affiliated to the scheme. The list can also be ordered from the secretariat and is available on the IDA's website: www.ida.dk.

The title "Accredited Structural Engineer" may be used freely following accreditation.

If accreditation is not awarded

If the committee decides not to award accreditation, the applicant is notified of this, and the notification will normally contain the committee's grounds for refusal. The refusal can be appealed to the Executive Committee of the Danish Society of Engineers (IDA). The Executive Committee's decision is final and cannot be appealed to the courts, but the applicant is able to submit a new application with a new project.

Renewal of accreditation

Accreditation is only awarded for a limited period, normally five years. Renewed accreditation must then be sought. The secretariat keeps a register of the relevant dates and sends out notification in plenty of time.

The following documentation is normally required for renewals:

A completed and signed application form.

Information on building cases.

The information must comprise:

A list of which cases the applicant has submitted to the building authorities in the last three years. The list does not need to be complete, but it should cover the most important aspects of the cases which the applicant has submitted to the building authorities.

The case information should cover:

The name of the project

The project date

Building authority

Brief description of the nature and scope of the project

It should also be made clear which types of task the applicant has primarily been engaged with during the period with regard to project management, static calculations, administration, etc.

The committee assesses the applications on the basis of the information provided, and this is why great importance is placed on the qualitative and quantitative content of this information. If the application is considered to be lacking in some way, the committee will request supplementary information or possibly ask to examine a project.

Fees

A fee is charged for both initial accreditation and re-accreditation. The amount of the fees is set by the IDA's Executive Committee so that the scheme is self-financing. The secretariat provides information on the amount of the actual fees charged.

Change of position, change to company address

In order to maintain an accurate register of accredited structural engineers, it is necessary for the secretariat to be informed of any changes in address or position. The secretariat at the IDA must be directly informed of these changes. It is not sufficient to merely update the IDA's membership list. Employment at a new company normally also means a change in the insurance conditions, and this is why the secretariat must be notified. When the secretariat receives notification of this, two new declarations of insurance cover are sent out which must then be completed and forwarded to the insurance company, as described under the section Renewal of accreditation.

Unemployment

Should you become unemployed, you will no longer be covered by a liability insurance policy, and the secretariat must therefore be notified of this. The lack of insurance means that the accreditation lapses.

In practice, however, this rule is administered so that if for a short period the person in question either takes out insurance themselves or takes employment which is covered by a liability insurance policy, the secretariat can reinstate the accreditation without presenting an application to the committee. Otherwise, the same procedure as for first accreditation applies in principle. The committee may, however, make an exception from this, and it is practice that when renewal is requested within a period of less than one year, the requirement for a new project is waived.

Work abroad

For work done abroad the same rules as above apply purely as a formality.

Once someone is no longer covered by a valid liability insurance policy, the accreditation lapses. The secretariat must therefore be notified of this.

The committee does, however, look positively on structural engineers who for take on work abroad for a short or longer period of time. We are aware of the practical difficulties associated with having a previous accreditation reinstated and are therefore prepared to accommodate this.

Lapsed accreditation

It is important that you allow your accreditation to lapse at the right time. The committee believes that it is crucially important to the value of the scheme that only individuals who work with statics and project management on a daily basis retain their accreditation.

The committee therefore encourages all accredited structural engineers to surrender their accreditation when they no longer work with static calculations in practice.

The committee will normally accommodate the reinstatement of a previous accreditation if the person concerned should need it once more.

The committee encourages companies to get their structural engineers to apply for accreditation in plenty of time, in order to avoid situations where, for example, a leading engineer who does not carry out daily statics work signs off the projects simply because he is the only accredited structural engineer at the company.