Implementation of the EPBD in Sweden

Status in November 2010

1 > Introduction

In Sweden, the EPBD, 2002/91/EU, is in full action. Since the last status report was published in 2008, many new companies have been accredited to issue energy certificates, and certification has been accepted by the market.

The energy requirements have also been revised once during this period. The Ordinance (1994:1215) was revised in 2008, followed by a revision of the building regulation later in the same year (BFS 2008:20), where the energy requirements for electrical heated buildings were tightened. This revision went into full force on the 1st of January 2010, after an eleven month transposition period.

Implementation started in 2005 with the work on the revision of the Building Code (BBR 12, BFS 2006:12) method and minimum requirements and the regulation on energy certificates/energy declaration, based on the Law (2006:985) of June 2006 and the Ordinance (2006:1592) that was decided on in December 2006, that have remained unchanged so far. The revision towards the implementation of the recast of the EPBD has started, through a process in which the current legislation is scrutinised, in order to identify the impact of the recast of the EPBD, 2010/31/EU, on the old legislation. It is expected to result in a new law and a new ordinance in 2011, followed by new revised regulations before the deadline in 2012.

This report presents an overview of the current status of implementation and of the plans for the evolution of the implementation of the revised EPBD in Sweden. It addresses certification/declaration and inspection systems, including quality control mechanisms, Qualified Experts, information campaigns, incentives and subsidies.

In Sweden, the implementation of the EPBD is the overall responsibility of the Ministry of Enterprise, together with the Ministry of Environment. Boverket, the Swedish National Board of Housing Building and Planning, is the managing body for most of this process. Boverket manages the Building regulations and has designed, developed and currently supports the entire declaration system, which is based on a central registry and database, including a part concerning the inspection regime for A/C. The Swedish Energy Agency is responsible for the information campaign on boilers that comes as option b in article 8.
2 > Certification/Declaration

Declaration of buildings

Starting with the law in October 2006 and the Government’s ordinance in 2007, Boverket’s national regulations for Energy declaration and A/C inspection in Buildings (BED, BFS 2007:4) came into force on the 1st of March 2007. The first declaration was registered on the 10th of September 2007, after a short period, during which Independent Expert companies were accredited for the task. Boverket’s regulations have been revised twice, resulting in BED 2 (in 2007) and BED 3 (in 2010).

To be accredited, a company needs to have at least one person certified according to Boverket’s regulation on Energy experts (CEX, BFS 2007:5). This regulation has been revised once, CEX 2 (in 2010).

The timetable for the implementation of the BED regulations in various types of buildings was divided into two phases, until its full implementation in January 2009, when all the required buildings were included in the certification system:

The first phase took place before the 1st of January 2009 concerning
- Official buildings larger than 1,000 m³,
- Buildings that are rented, residential or non-residential.

The second phase continued from the 1st of January 2009 onwards with
- New buildings, and
- All buildings when sold.

The two first categories of buildings must always have an Energy declaration less than ten years old.

New buildings should have an energy declaration issued at the latest two years after the building is brought into use. This also serves as a check of the compliance with the minimum requirements of building regulations.

Buildings that are sold should have an energy declaration less than ten years old at the time of sale. Otherwise, the buyer can order a declaration at the sellers’ expense within six months.

In Sweden, public buildings (Special Building/Special byggnad) are defined in the taxation law as owned by private or public bodies. Every Special building larger than 1,000 m³ is required to always have a declaration less than ten years old, and display it, at an entrance often used by the public.

Currently, there are more than 30,000 non-residential buildings, including public buildings, declared and many more in the process of being declared. Also, Buildings that are rented out (multifamily residential and non-residential) have to have a valid declaration on display.

Each building is assigned an energy rating according to the table on the left.

Declarations can only be issued by an Independent Expert (IE) (juridical person). IEs are accredited companies duly qualified, through a person in a leading position, who is certified as an Energy expert, according to the CEX regulation, and is accredited by the Swedish Board for Accreditation and Conformity Assessment, SWEDAC, according to the international standard ISO 17020. The list of Independent Experts is continuously updated and always available to the public online at SWEDAC’s website. At present it contains about 400 accredited companies.

Experts from other EU- or EES-Countries do not need to be accredited, but have to be approved as Energy experts in their own country. So far, there are three persons issuing Energy Declarations in Sweden under foreign approval, one Danish, one Finnish and one British expert.
The responsibility of having a declaration always rests with the building owner. There is no registration fee for the declarations issued, as Boverket manages the register, but it must be issued by an Independent Expert, who charges between about 500 and 2,000 € for this service. An owner who fails to deliver the declaration to a buyer can be forced to pay the cost of a declaration, if the buyer orders it within 6 months after the purchase. An owner, who fails to display the declaration in a special or rented building, can be fined.

Energy declarations are valid for 10 years.

The summary of the energy declaration

The summary of the energy declaration is the most visible aspect of the BED. This document assigns an energy performance label to the declared building and also shows whether indoor environment investigations, such as compulsory ventilation checks and radon measurements, have been carried out. It also gives information on where the reader can get more information about the energy declaration. A printed version of all energy declarations can be obtained from Boverket. Direct access to the National register “Gripen/The Griffon” can be obtained by the Building owners for them to see the declaration of their own building, as can the Independent Expert access it to view the declarations they have been involved in.

The performance of final energy $[kWh/m^2 A_{temp}]$ is calculated using the measured values from heating and cooling energy, as well as energy used for the ventilation system, domestic hot water and for the property’s energy, including for example pumps and lighting in public spaces; all this is divided by the area $[A_{temp}]$ of the building that is intended to be heated to over 10 °C.

Additionally, energy performance is corrected for normal use, for example, the Independent Expert uses a correction factor in relation to size of family or if something extraordinary has happened during the year of measurement. Moreover, the on line formula that is used by the Independent Expert calculates the correction for the climate during the measured year, by degrees, days and/or Energy Index, so that it is compatible with other declarations made in different years.

The energy label classifies buildings on an efficiency scale ranging from low energy use to high energy use. This label is under revision and a Swedish classification standard is under development, based on the Swedish Building Code, so it will be able to give an energy performance indicator at a later stage.

The practical benefit of Energy Performance (EP) certification is found in the recommendations that are given to the building owner. These are provided in page 31 of the declaration, which also lists which measures have been taken since the last declaration. The Independent Expert also calculates the cost per saved kWh.

The suggested improvements include a short description and estimates of costs per saved kWh. Recommendations made by the Independent Expert should be the result of studying the case of the specific building, rather than general recommendations selected from a database, based on typical situations. The Independent Expert also calculates the impact on the building’s release of CO₂, when measures are carried out.

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1 The pages can vary due to the dynamic format, offering the independent expert the opportunity to give more than one recommendation.


**Figure 1 Typical recommendations proposed by experts**

<table>
<thead>
<tr>
<th>Frequent recommendations</th>
<th>Building technique</th>
<th>Installation technique</th>
<th>Control and regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>21%</td>
<td>54%</td>
<td>25%</td>
</tr>
<tr>
<td>First most</td>
<td>Attic insulation 10%</td>
<td>Water saving measures 21%</td>
<td>Central temperature regulator 9%</td>
</tr>
<tr>
<td>Second most</td>
<td>Changing windows 8%</td>
<td>Changing radiator valves 8%</td>
<td>Adjustment of radiators 5%</td>
</tr>
<tr>
<td>Third most</td>
<td>Wall Insulation 2%</td>
<td>Conversion to heat pump 5% Ground + 4% Others</td>
<td>Temperature lowering 2%</td>
</tr>
</tbody>
</table>

**Figure 2 - Recommendations to improve the energy performance**

<table>
<thead>
<tr>
<th>Building category</th>
<th>Total final EP [TWh]</th>
<th>Saving potential [TWh]</th>
<th>Saving potential [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single family buildings</td>
<td>1.9</td>
<td>0.4</td>
<td>20</td>
</tr>
<tr>
<td>Multi family buildings</td>
<td>15.2</td>
<td>2.1</td>
<td>14</td>
</tr>
<tr>
<td>Non residential</td>
<td>7.1</td>
<td>1.7</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>24.2</td>
<td>4.2</td>
<td>17</td>
</tr>
</tbody>
</table>

New buildings must achieve at least the minimum demands given in the Building regulations, verified by a calculation performed before the construction begins, and also validated by a measurement two years after the building comes into use. This requirement came into force on the 1st of July 2006, with a transitional period of one year. In Sweden, all renovated buildings should fulfil the minimum requirements that apply to new buildings, taking cultural values and the technical possibilities of the renovated building into account.

The calculation methodology is described in the building regulations and includes heating, cooling, domestic hot water and energy needs for communal areas of the building, expressed in terms of bought energy. The minimum requirement of the overall U-value is calculated according to the standard EN-ISO 13790.
Figure 3 - Web based central registration system

The Independent Expert can make the declaration either directly online or save a file on a computer for later access to the central register. It is mandatory to send the declaration via the web based system; the Independent Expert can import data with an appropriate format from different systems owned by the building owner, and to access/consult/modify/copy the documents and print the Energy Declaration online, for delivery to the building owner.

Quality assurance (QA)

In Sweden, Quality Assurance is taken into account within the Accreditation system, where ISO/IEC 17020 is the standard in use. According to this standard, the quality assurance system within the Independent Expert-company is the assurance of the quality of the work performed by the company.

As accreditation of a company is based on a person in a leading position that is certified as an energy expert, according to the CEX regulations, the Quality assurance system of the company should certify that the other personnel have the same skills (training) as the certified person. The standard also sets the terms for dealing with complaints and handling documents and other tools that are needed to carry out the energy declaration of a building on different levels, depending what level the certified person is certified on (see section 4 below).

The requirement of expert skills is stated in the CEX (BFS 2007:5), see link above, and is the first stage in guaranteeing a high level of quality of the Independent Expert-company. Within CEX, the level of education, experience and suitability is graded into the three different levels below. Within the accreditation system, SWEDAC scrutinises all companies that intend to continue being accredited at least once a year, goes through their quality assurance programmes and other parts of their work, and also checks a specific number of the declarations issued by the company.

The check includes a full review of declarations, in order to ascertain accordance with the methodologies. If the company does not pass the examination of SWEDAC, its accreditation is withdrawn and it can no longer continue with its work. Furthermore, if the person certified as an energy expert leaves the company or the leading expert’s personal certification is withdrawn, the company must stop issuing declarations, unless more than one certified person is employed in a leading position.

At the end of 2010, there are 371 registered companies. Three (3) companies have lost their accreditation due to malpractice. A further 38 companies have withdrawn their own accreditation, because this activity was not considered profitable, and for other reasons.
The target is to audit at least 8% of all the issued certificates every year by 2011, using simple and detailed checks.

### 3 Inspections - Status of implementation

Sweden has adopted option b) on Article 8 of the EPBD, establishing a regular information campaign on boilers. The Swedish Energy Agency supports the regional and local energy offices with information material and they are currently holding informational meetings with building owners around the country.

The inspection of air conditioning systems in Sweden is included in the declaration system and is carried out at the same time and its records kept in the same register as the declaration. Inspections of air conditioning systems started together with the declaration system in 2007.

In Sweden, the Independent Expert is also responsible for carrying out inspections of air conditioning systems, if the certification of the leading person is at the Qualified or Air condition level (see section 4).

The set of required minimum information for the air condition inspections is defined in the Law (2006:985) on energy declaration for buildings. The Independent Expert must fill in at least the following information in the energy performance certificate:

1. the size of the installed system compared to the needs in the building, and
2. whether a more energy efficient use can be obtained by altering either the whole system, change parts of or renovate the system.

Currently, air condition inspections follow the methodologies defined in EN14511-2 and EN15240.

The inspection of air conditioning systems takes place at least every 10th year or combined with every third (three years apart) compulsory ventilation check. If the inspection is coordinated, they are made every sixth or ninth year. Inspections are paid by the owner of the building.

At present, the system regarding air conditioning inspections collides with the compulsory ventilation checks but, with the new option in the recast of the EPBD, this conflict will be resolved. Currently, a certified ventilation controller does an inspection and his or her recommendation on energy efficiency improvements needs to be handed over to the Independent Expert, who in turn fills it into the inspection report of the air conditioning system.

### 4 Qualified Experts

The experts issuing declarations must be employed in an accredited Independent Expert (company) with the competence stated in CEX. According to CEX, an energy expert must have passed a higher technical exam, and must have at least five years of experience, of which at least two years within the field of energy or indoor environment, in order to be deemed suitable. Experts can be certified on three different levels; Normal (for the simpler buildings), Qualified (for the more complex buildings) or Air-condition (for the buildings with only A/C checks) level.

**Certification of energy experts.**

In Sweden, four companies are accredited to certify energy experts. Certified energy experts can also work as specially acknowledged persons within the energy field, as sometimes it is prescribed by the municipality building board.
that they assist the person who is building or ordering a building to be built. Up until today, there are almost 1,000 registered energy experts on Boverket’s website. Strangely enough, not all experts want to be registered.

Certified experts can act on a freelance basis, but not when it comes to the energy declaration of buildings. Then, they have to be part of an Independent Expert-organisation.

5 > National Information and Communication Campaigns

The need of informing citizens on energy and declaration

A campaign has been developed to increase public knowledge on energy efficiency. The campaign slogan, “Bli energismart!/Get Energy Smart!”, was widely promoted in the press and on the Internet. The concept of energy declaration of buildings (BED) has also been promoted on TV and in appendices to the big national newspapers.

Boverket’s website www.boverket.se provides detailed information about BED to supervising authorities, professionals of the sector, property owners and developers, and also to the general public. It includes information on qualified experts, the legislation and frequently asked questions. Detailed brochures as well as official texts are available on the national websites.

Progressively, the communication campaign was directed to the general public and owners of single family homes, as the last phase of EPBD implementation was reached (January 2009).

For the residential sector, Boverket has focused on real estate agencies and housing companies, to ensure that they were aware of the new requirements and to get their involvement and support.

People are now able to use the energy declaration as an additional factor, when making an investment decision, such as purchasing a house. Energy declaration is one of the few administrative processes that provide potentially useful information to the house owner, explaining what he or she can do to actually save money and improve thermal performance.

In Sweden, ordinary consumers also have a website launched by the National Board and the Consumers Agency, called www.omboende.se, (about living) which they can go to with questions concerning everything about their living conditions, in dwellings or privately owned houses.

6 > National incentives and subsidies

In Sweden, incentives and subsidies are administrated by Boverket and the statistics are published on our website www.boverket.se.

During the period 2008 to 2009, incentives and subsidies have been given towards different purposes, when it comes to using energy efficient systems. The yearly figures for 2010 are not yet ready at the time of publication of this report.
For the installation of solar energy systems in private and public buildings 2.5 M€ in 2008 and 2.5 M€ in 2009 have been paid.

For the change of windows in single family houses to windows of a U value better than 1.2 W/m2.K, a tax deduction of 4.8 M€ in 2008 and 5.9 M€ in 2009 has been made.

During the years of 2008 and 2009, a tax deduction of 0.9 M€ in 2008 and 1.0 M€ in 2009 has been made for the installation of bio-fuel boilers in new single family homes.

Subsidies for conversion to renewable energy projects in public buildings have been paid, amounting to 35.5 M€ in 2008 and 9 M€ in 2009.

Subsidies of 1.8 M€ in 2008 have been paid for conversion to renewable energy projects in general.

Subsidies for conversion from direct electric panels to another distribution system have been paid, amounting to 12.4 M€ 2008 and 9.8 M€ in 2009.

Municipalities have been given support for planning purposes concerning wind power, of 2.6 M€ in 2008 and 2.1 M€ in 2009.

At the moment, a tax deduction of 50% is made to all building owners renovating their houses, amounting to up to 5,000 € annually/ building and owner.

The Energy Agency together with the Swedish building industry has launched a subsidy programme for low energy use, called “LÅGAN” (Low Energy Use/LÅG energiANvändning). This will hopefully provide further experience with the technique and its impact on other essential requirements.

The programme intends to

- encourage new construction of, and conversion to, energy-efficient buildings
- foster a national market for low energy use buildings, and
- assist the establishment of an existing national body of suppliers of products and services, and to create confidence in them.

7 > Impact of the EPBD at national level

Evolution of Minimum quality requirements in building regulations

The Minimum requirements for buildings have an old tradition in Sweden, as from the beginning of the 1950s there have been national requirements for buildings. Before then, there were already some local requirements.

The biggest step towards the EPBD was taken in 2006, when the revised building code stated the maximum use of energy allowed in new buildings for the first time. With the legislation on the alteration or renovation of buildings, the regulations of 2006 also meant that there were to be demands on all buildings going through a renovation, irrespective of size.

Regulations regarding even more energy efficient buildings when heated with electricity were launched in 2009; the next step to be taken is to tighten the demands for all other buildings in 2011, with the aim of a revision in 2015 and 2018/2020 towards Nearly Zero Energy Buildings.

In 2002 the energy criterion was specified as a $F_s$-demand. The maximum specific energy $F_s$ [W/m$^2$.°C] for residential buildings was $0.16+0.81\frac{A_w}{A_{env}}$, where $A_w$ is the area of windows and $A_{env}$ is the inside area of the building envelope. For non-residential buildings, it was $0.22+0.81\frac{A_w}{A_{env}}$, with a maximum measured area of windows of 18% of the heated area.

From 2006, maximum used energy and maximum U value have been set as requirements.

The building code is closely related to the energy declaration system, as the verification of compliance with the building code is done through an operational rating, taking place two years after the building is brought into use, just like the first declaration of the building in the energy declaration system. A less
extensive verification can take place during the construction phase, where compliance can be checked using a calculated rating.

### Requirements for residential buildings

<table>
<thead>
<tr>
<th>Climatic Zone</th>
<th>Residential buildings</th>
<th>Residential building electric heating&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>North</td>
<td>Middle</td>
</tr>
<tr>
<td>2006</td>
<td>130</td>
<td>110</td>
</tr>
<tr>
<td>2009</td>
<td>150</td>
<td>130</td>
</tr>
<tr>
<td>Proposed demands 2011</td>
<td>130</td>
<td>110</td>
</tr>
</tbody>
</table>

- Requirements in kWh/m<sup>2</sup> of final energy consumption
- U values in W/m<sup>2</sup>·°C

### Alternative validation in buildings smaller than 100 m<sup>2</sup>

<table>
<thead>
<tr>
<th></th>
<th>Residential buildings</th>
<th>Residential building electric heating &gt;50 m&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006</td>
<td>2009</td>
</tr>
<tr>
<td>U&lt;sub&gt;roof&lt;/sub&gt;</td>
<td>0.13</td>
<td>0.13</td>
</tr>
<tr>
<td>U&lt;sub&gt;wall&lt;/sub&gt;</td>
<td>0.18</td>
<td>0.18</td>
</tr>
<tr>
<td>U&lt;sub&gt;floor&lt;/sub&gt;</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>U&lt;sub&gt;windows&lt;/sub&gt;</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>U&lt;sub&gt;doors&lt;/sub&gt;</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Air- Tightness</td>
<td>0.6 l/s. m&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.6 l/s. m&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Heat Recovery in ventilation&lt;sup&gt;1&lt;/sup&gt;</td>
<td>70% temperature efficiency</td>
<td>70% temperature efficiency</td>
</tr>
</tbody>
</table>

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<sup>2</sup> Before 2009 only single family houses heated with electric panels

<sup>3</sup> In buildings between 60 and 100 m<sup>2</sup>
### Maximum installed electrical power for heating in residential buildings (kW)

<table>
<thead>
<tr>
<th>Climate zone</th>
<th>North</th>
<th>Middle</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum installed Power [kW]</td>
<td>5.5</td>
<td>5.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Addendum when $A_{\text{temp}} &gt; 130 \text{ m}^2$</td>
<td>$0.035*(A_{\text{temp}}-130)$</td>
<td>$0.030*(A_{\text{temp}}-130)$</td>
<td>$0.025*(A_{\text{temp}}-130)$</td>
</tr>
</tbody>
</table>

### Requirements in non-residential Buildings

<table>
<thead>
<tr>
<th></th>
<th>Non- residential buildings</th>
<th>Non-residential building, electric heating†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>North</td>
<td>Middle</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>140</td>
<td>120</td>
</tr>
<tr>
<td>Addendum if $q &gt; 0.35 \text{ l/s.m}^2$, $q_{\text{max}} = 1.0$</td>
<td>$110*(&lt;q&gt;-0.35)$</td>
<td>$90*(&lt;q&gt;-0.35)$</td>
</tr>
<tr>
<td>Proposed demands 2011</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

† Requirements in kWh/m² of final energy consumption

U values in W/m².ºC

### Maximum installed electrical power for heating in non-residential buildings (kW)

<table>
<thead>
<tr>
<th>Climate zone</th>
<th>North</th>
<th>Middle</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum installed Power [kW]</td>
<td>5.5</td>
<td>5.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Addendum when $q &gt; 0.35 \text{ l/s.m}^2$</td>
<td>$0.030*(&lt;q&gt;-0.35)*A_{\text{temp}}$</td>
<td>$0.026*(&lt;q&gt;-0.35)*A_{\text{temp}}$</td>
<td>$0.022*(&lt;q&gt;-0.35)*A_{\text{temp}}$</td>
</tr>
<tr>
<td>Addendum when $A_{\text{temp}} &gt; 130 \text{ m}^2$</td>
<td>$0.035*(A_{\text{temp}}-130)$</td>
<td>$0.030*(A_{\text{temp}}-130)$</td>
<td>$0.025*(A_{\text{temp}}-130)$</td>
</tr>
</tbody>
</table>

After the proposed changes in 2011, the work towards Nearly Zero Energy Buildings continues. The first step is supposed to be launched in 2014 - 2015 and the second part will come into force in 2019 - 2021, depending on whether it concerns public buildings or others. The national environmental objectives stipulate energy savings of 20% by 2020 and 50% by 2050.

† Before 2009 only single family houses heated with electric panels
Other impacts

As of September 2010, over 280,000 certificates had been issued, since the scheme was launched in March 2007, in response to the requirements of the EU Energy Performance of Buildings Directive (EPBD).

In 2010, around 9,000 certificates for existing buildings are issued every month. The national database of declared buildings is growing and up to date information is added. The information will be useful in order to monitor progress of the implementation of the directive. Basic statistics, such as the number of certified buildings, including estimated savings, will be easier to obtain.

The database will also be used to produce information that is useful for the revision of the technical regulations, where a possible tightening of minimum requirements, as well as a change or optimisation of some operational rules, is possible.

![Figure 4 The accumulated amount of energy declarations in Sweden](image)

Among the different categories included in the graph above, the three largest are approximately:

- 120,000 multifamily houses,
- 85,000 single family houses, and
- 30,000 non-residential buildings, public buildings included.

The average energy consumption per m² measured in these three categories was 146 kWh/m² in multifamily houses, 111 kWh/m² in single family houses, and 164 kWh/m² in non-residential buildings. The estimated savings potential in declared buildings is 15% in multifamily houses, 26% in single family houses and 15% in non-residential buildings.

8 > Conclusions and future planning

The EPBD requirements for new buildings and renovations will certainly bring important energy savings in the near future, although new and renovated buildings only represent a small share of the entire building stock in Sweden (around 4.5 million homes). Currently, less than 50,000 new apartments are built each year in Sweden. Therefore, the impact of applying energy performance requirements in new and renovated buildings is limited, within some years, however, renovation of the so called “one million dwellings program” will start. Hopefully, it will have a significant impact on the reduction of energy consumption in the building sector.

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5 Between the end of the 1960s and the beginning of the 1970s, the so called one million dwellings programme took place, that is, one million new dwellings were built in ten years.
To achieve real energy savings in the building sector, the improvement of existing buildings is needed and declaration can play a fundamental role. The recommendations made by the experts in the declarations offer important help to building owners in making the right choices of measures for improving the energy efficiency of buildings. Concerns about the investment cost in using energy efficient technologies, though, can pose a major barrier.

On the one hand, a main challenge is training the public to be aware of its real energy use. Lack of awareness generally comes from two fronts: 1) consumers are not aware of the amount of energy they are currently consuming in their house. This makes it difficult for them to understand the benefits of sustainable technologies and 2) consumers are not aware of the sustainable technologies available.

On the other hand, additional training for qualified experts can improve their skills in making energy efficiency recommendations regarding the optimum financial and technological building improvement solutions.

The main challenges and future developments of the declaration system for the short and medium term, thus, are:

›   Continued improvement of the informatics platforms that support the declaration system,
›   Reinforcement of the quality of declarations, increasing energy efficient renovations,
›   Continuous improvements of the compulsory ventilation check system,
›   Encouragement towards the building of low energy buildings, so that the building regulations are evaluated and improved at four/five year intervals, in order to conform to the Zero Energy Buildings (NNE) system;
›   Continued work on the implementation of the recast of the EPBD.

In the coming years, hopefully the new building code for buildings heated with other energy sources than electricity, as well as new regulations on the alteration or renovation of buildings will be decided. These proceedings are planned to start in October/November 2011 and an EU-notification is planned for spring/summer 2011. After that, the work towards Nearly Zero Energy Buildings will be increasingly stressed.

Sweden is launching a strategy in order to stimulate an investigation of the costs and impact on indoor and other essential requirements of buildings with lower energy use.

The Swedish standards organisation, SIS is also about to launch two new national standards on the classification of buildings, concerning installed power and energy use, SS 240 00-1 and SS 24000-2. In the future, these will be used to classify the declared building from A - G, in order to get an energy performance indicator and to set targets regarding the energy use of Nearly Zero Energy Buildings, in the next years.