

Implementation of the EPB standards in The Netherlands including some reflections



JAAP HOGELING
EPB Center,
Weena 505,
3013 AL Rotterdam,
The Netherlands



DICK VAN DIJK
EPB Center,
Weena 505,
3013 AL Rotterdam,
The Netherlands

Development of new national energy performance of buildings calculation method (2017-2019)

By the end of 2017 NEN decided to update the existing national Energy Performance standards in The Netherlands. The planning was to finalise this work within roughly one year. This short time frame was based on the requirement in the EPBD to report to the Commission by March 2020. The new national method should be operational by 2020. It was estimated that final checking and preparing and distributing reliable software based on this national method should at least take one year.

It was clear from the beginning that this was a very ambitious time frame, in particular because the new methodology had to meet a number of demands that might not all have been covered by the existing method. Moreover, the goal was to develop a methodology that would be as much as possible in line with the European standards.

In order to decrease the risk of failing to meet the deadline, three decisions were taken:

- 1) To prepare, initially, a type of document that has a lighter approval procedure than a new national standard: a so called NTA, a national technical specification.

- 2) To appoint a few special teams of experts and stakeholders, each responsible for the (parallel) preparation of a specific section of the calculation procedures.
- 3) To ask these teams to start writing the document as much as possible in line with the EPB standards, but not by filling in the national choices according to the template of Annex A of each standard (-> National Annex or Annexes for each EPB standard), but by directly copying from the EPB standards and pasting into the draft national method the useable or applicable elements.

The teams working on the proposals had access to the set of Formal Vote versions of the EPB standards (not the final published EN or EN-ISO EPB standards) and they took over substantial parts of the different EPB standards. The results of the teams were combined into one working draft NTA and translated into Dutch for the parts that had been copied from the EPB standards.

During 2018/2019 the overall quality and consistency of the working draft NTA was reviewed and improved and further changes in the technical content were made were necessary. An Excel tool was developed to support this process. In parallel to the preparation of this determination method, the government worked on the formulation of the future minimum energy performance requirements. These requirements will consist of

three levels: the so called BENG1 (BENG = NZEB), BENG2 and BENG3, more or less standing for the level of energy needs, energy use and renewable energy contribution.

Finally, the new national calculation methodology has been published by NEN in Dutch language dated June 2019 as NTA 8800, *Energieprestatie van gebouwen – Bepalings methode (Energy performance of buildings – Determination method)*. A voluminous document of 980 pages (can be downloaded for free from NEN website).

The calculation procedures in NTA 8800 are in accordance with article 3 of the EPBD. The NTA 8800 makes use of the set of EPB standards as published by NEN as NEN-EN- and NEN-EN-ISO standards. As it is stated in the introduction to the document “*These EPB standards were leading, with national interpretation and addition where necessary and allowed*”

EPB standards and National Annexes; the recommended route from the European perspective

The time given to develop the new Dutch national method was very short. This was one of the reasons for the decision not to start by trying, one by one, to adopt the EPB standards by filling in the template with national choices as presented in Annex A of each of these standards.

This route, adopting the EPB standards by filling in the template of Annex A with national choices, was recommended by the Dutch experts involved in the preparation of the EPB standards. These experts were of the impression that quite some EPB standards were fit for adoption by The Netherlands. After all, during the development of the set of EPB standards (2011–2017) Dutch delegates, both from the technical side and from the regulatory side had spent quite some effort to review the draft documents and to submit comments that had led to many improvements of the standards and to additional choices that aimed to make the standards fit for use within the Dutch regulatory and practical context.

So, the route that would have been preferred by the Dutch experts involved in the writing of the EPB standards would have been to fill in the National Annexes, starting with the most important EPB standards, such as EN ISO 52000-1 (EPB overarching procedures) and EN ISO 52016-1 (energy needs for heating and

cooling), etc. This would very likely have revealed that these EPB standards could be adopted without problem.

And if or when, for a specific EPB standard, they would have come to a specific detail for which the options provided by the template in Annex A would not cover the option that the experts and regulators in The Netherlands were looking for, then they could have flagged this as a point of attention for the next revision of the EPB standard.

Yes, it is true that in such a case the specific EPB standard is also not adopted: if a EPB standard is formally adopted in the building regulations, the National Annex of that standard has to be 100% in line with the template in Annex A of that standard. But the big advantage is, that in this case it is made fully transparent where the discrepancies are and what needs to be done to be able to adopt the EPB standard in the near future. So, both for the future prospects and for the maintenance of the national method this would be recommended.

The NTA 8800 in itself does not reveal the similarities and differences with the EPB standards. However, this does not mean that there is no information on the link between NTA 8800 and the set of EPB standards. This is explained in the next section.

So, in short one could say that by taking the templates of Annex A as a starting point it would have been clear that:

- for the (maybe only few, but probably the most important ones) EPB standards for which the National Annex could be filled in 100% in line with the template, the EPB standard could have been adopted without problem, with the standard and National Annex referenced in the regulations for that particular part of the calculation method;
- for those EPB standards for which the National Annex could not be filled in 100% in line with the template, but perhaps “for 80%”, the EPB standard could indeed not have been adopted, so a National Annex would not be applicable. In such a case the content of the filled in Annex A, including the deviations from the template containing the deviating national options, would have been published as separate datasheets. In the context of the EPB standards these are called ‘National Datasheets’;
- for those remaining EPB standards that are relevant for the national methodology but that appear to be more fundamentally different from what is consid-

ered fit for the national regulatory and practical context, it could be problematic to fill in the template or even a part of it. In this case there is no alternative than to refer to a national calculation procedure for this part of the calculation.

But as said above, the “short track” development of the new national method led to the choice for a different route.

All-in-one document needed as national method?

One important argument for developing a national standard or equivalent document containing the national calculation method to assess the overall energy performance of a building is that for practical user you need an all-in-one document, written in the national language.

This cannot be denied, although some people say that in practice only the software tools are used that are based on the standards and “no one will read the standards anyway”.

From the start of the development of the set of EPB standards it has been clear that such a need exists. But in fact there is no conflict between adopting the EPB standards plus National Annexes and having an all-in-one national document: it is not unusual to prepare a national application document that contains all the chosen elements of the EPB standards as given in the National Annex, with all the other input from the National Annex integrated; and translated. The EPB standards plus National Annexes are still the formal documents, but exactly the same calculation procedures is performed by using this (informative) national application document. If in the national document the source of the elements are tagged, maintenance, e.g. in case of revisions of an EPB standard, is also no obstacle.

Proposals from Dutch experts worked out in the NTA 8800 that could be considered as clarification or improvement of the EPB standards.

Of course, there are several issues where the Dutch experts succeeded in providing better solutions our more clear procedures as included in the current set of EPB standards. An example is the impact of solar shading on photo voltaic panels is more detailed than in the CEN standard, because NL has always, and still wants to take into account the more than linear deterioration of the output caused by partial shading of the

solar panels, in case of certain types or poor arrangement of solar panels. Another example is the national methods for Heat Pump application which overcomes the shortcomings in information in EN 15316-4-2¹ (heating & DHW generation, heat pump systems) and EN 16798-13² (cooling systems, generation). This is not surprising as CEN TC 156 & 228 already decided to install an ad-hoc group to look into these issues and provide advice for a short-term fix and long-term revision of these to standards. Further information on the Heat Pump issues is expected to be published in the near future at the EPB Center website.

More examples of good proposals could perhaps be extracted from the NTA8800 and the justification document, but this needs further study. It should be beneficial for the EPB expert community if experts around Europe working on the national implementation documents have the opportunity to publish possible improvement justification articles. This information could be used by the CEN Technical Committees to maintain and improve the EPB set of standards in the years to come.

NTA 8800 and National Annexes / National Datasheets

So, the NTA 8800 is an all-in-one document which is for a large part based on the EPB standards: where possible, procedures from the EPB standards were copied and pasted into the national document. Some national interpretations and/or national additions where needed if a particular EPB standard was not clear or not consistent, or if a specific Dutch building practice required a more simple or a more advanced methodology.

In order to keep track of the differences with the set of EPB standards, NTA 8800 itself contains references to the EPB standards. Moreover, during the development of NTA 8800, a justification document (June 2019, in total 104 pages) was prepared that explains where and why the method deviates from the EPB standards.

In order to meet the requirements of Annex I of the new EPBD, and after completion of NTA 8800, National Datasheets on EN ISO 52000-1, 52003-1, 52010-1, 52016-1 and 52018-1 have recently been filled in by NEN in cooperation with the experts involved in the development of NTA 8800.

However, these datasheets seem to be intended only for the reporting to the European Commission and not

intended for use in practice, so there seems no necessity to check if the National Datasheets are correct and complete other than meeting the obligation from the EPBD. It is also not sure if these Datasheets will become publicly available at short notice.

Using a more advanced methodology

In theory one could try, but the national calculation software will not support this, to use the EPB standards in connection with the assumptions and choices of the not yet published national data sheets. And even when you succeed to follow this road, the EP assessor has to prove that it is according to the NTA 8800 which makes this road not practical.

Future prospects

As said before, the new Dutch method had to be prepared in a very short time. Now that NTA 8800 has been completed it might be a good moment to analyse

in detail to what extent the methodology now laid down in NTA 8800 could have been described in terms of (adopted) EPB standards and National Annexes. Both for the future prospects and for the maintenance of the national method this would be recommended. It would make the discrepancies more transparent and would show more clearly what needs to be done to be able to adopt the EPB standards in the near future. ■

References

- 1 Energy performance of buildings – Method for calculation of system energy requirements and system efficiencies – Part 4–2: Space heating generation systems, heat pump systems, Module M3–8-2, M8–8-2.
- 2 Energy performance of buildings – Ventilation for buildings – Part 13: Calculation of cooling systems (Module M4–8) – Generation.



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