

Implementation of EN-EPB standards in Switzerland



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CEN-EPB standards and building energy regulations in a non-EU Country

As a non-EU country, Switzerland is not obliged to implement the EPBD, not even in the frame of the bilateral contracts. However, as a full member of CEN, the Swiss Association for Standardization (SNV) has – as all other CEN members – agreed to adopt all European standards and publish them as national standards. For the building area, this has been delegated to the Swiss Association of Architects and Engineers (SIA).

On the regulation side, the competence to set the energy requirements for buildings is on the level of the cantons, which means that in principle there are 26 energy regulations countrywide. In order to coordinate their procedures, the cantons have (as in several other political areas which are in the competence of the cantons) implemented a “conference of the cantonal energy directors” and on the level of the administrative officers the “conference of the cantonal energy specialist departments”. The latter has developed and revised in several rounds the “sample cantonal energy regulations”, a voluntary set of 11 modules with technical

regulations, which can be used by the cantons to base their regulations on. One of the modules, the “base module”, is recommended to be made mandatory, the final decision, however, can only be made on the cantonal level.

The current version of these sample regulations is MuKE n 2014 *. The implementation in the cantons is in different stages. Also, due to the different political processes and structure of laws and prescriptions, the way of implementation is different and may require public referendums in some cantons, whereas a governmental or parliamentary decision may be enough in other cases. In a few cantons, referendums have been lost and a second round with a revised proposal will be necessary. In others it passed, and the regulations are in force.

For the calculation methods and even in many cases for the requirements, the cantons are dedicated to relying on the standards by SIA “as far as possible”. They have delegated members in the standardization committees.

* <https://www.endk.ch/de/energiepolitik-der-kantone/muken>

Structure of the energy related SIA standards

In respect of the energy calculations, the SIA standards follow the scheme as shown in the **figure** below.

For the “heated only” buildings (left side, the distinction is by intention not made on the base of the building use, but the majority of these will be residential buildings), the calculation is done by a monthly method, described in SIA 380/1:2016 on the base of EN ISO 52016-1. The calculation of the heating systems is described in SIA 384/3 (under revision), which refers for many issues (except heat pumps) to the EN 15316 series.

For the conditioned buildings (right side), where an hourly calculation is required, the tandem SIA 382/2 and Leaflet 2044 has been in place since 2011. Reference and use by the cantonal regulations have been increasing since then, but still is not nationwide. A software (SIA TEC Tool) had been developed and maintained, which supported this process. However, the adaption and updating of this software in the process of the revision of the standards is questionable for two reasons:

- The need for a fundamental revision requires considerable financial resources which have not been found so far;
- competing software has arisen on the market in the meantime.

The status of the revision of the SIA standards is shown in the **table** on the next page.

National annexes to EN’s

The national annexes to the CEN EPB standards have been (or are being) developed in the frame of the respective revision projects of the national standards:

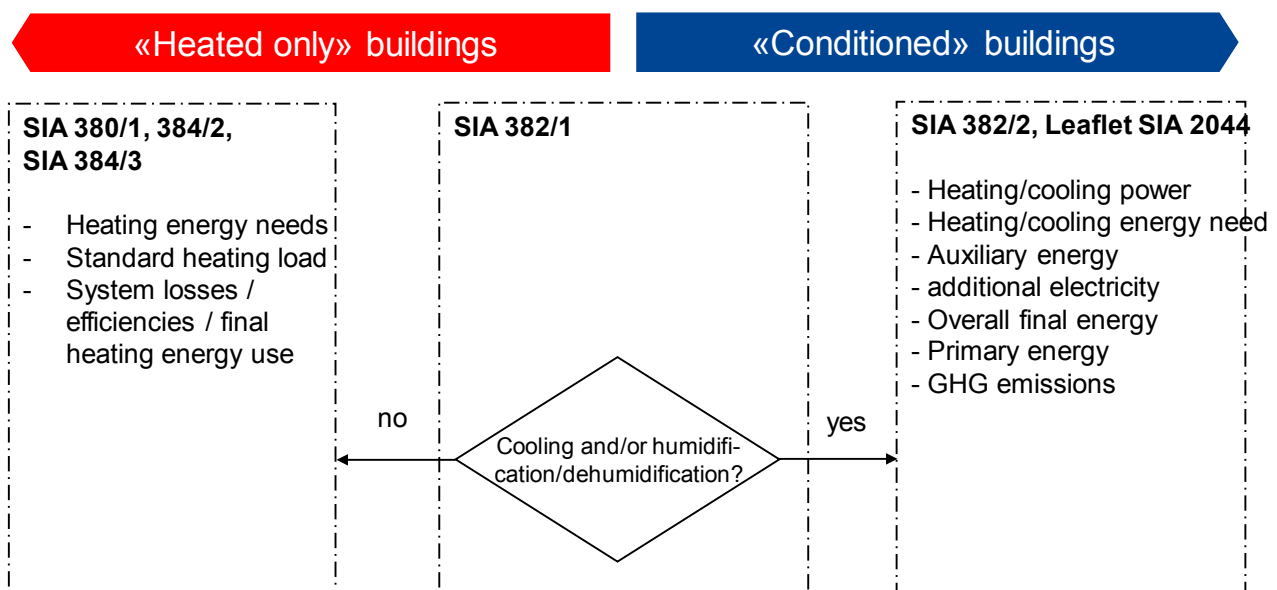
- EN ISO 52000-1: Revision of SIA 380; done but held back in order to avoid conflicts with revised SIA 380.
- EN ISO 52016-1. Revision of SIA Leaflet 2044 (hourly method only; monthly method is only done by reference to SIA 380/1.
- EN 15316 series: revision of SIA 384/3 (although also partially referred to in Leaflet 2044).
- EN 16798 series: revision of Leaflet 2044.

A way for the national annex to EN 16798-1 is currently being looked for. This is complicated since a whole set of national standards are affected.

Dynamic simulations – pressure from industry

Unlike in the European standards, dynamic simulation software has been allowed for conditioned buildings in SIA 382/2 under some conditions as an alternative for the “standard” method of Leaflet 2044.

SIA 380:2015:



Standard number	Scope	Status	Referred EN(-ISO)	Notes
SIA 380	Basis for energy calculations	Under revision (started 2019)	52000-1	Reference areas and total energy balance method
SIA 380/1	Heating energy needs	Published 2016	52016-1 (monthly)	Monthly method "upgrade" from EN ISO 13790 by corrigendum in 2018
SIA 382/1	Requirements for ventilation and air conditioning systems	Under revision (started 2017)	16798-3	Decision criteria for need for cooling etc. will be moved to new SIA 380/2
SIA 382/2	Conditioned buildings – power and energy	Under revision (started 2019, to be published as 380/2)	--	Hourly method required, general requirements for methods (no prescriptive method, reference to 2044)
SIA Leaflet 2044	Conditioned buildings – power and energy – Standard calculation method	Revised (published 2019)	52016-1 (hourly), 16798 series, Partly 15316 series	Own methods for dynamic walls and for movable shading; for lighting reference to SIA 387/4 hourly
SIA 384/2	Heating load	Under revision (to be published 2020)	12831-1	
SIA 384/3	Heating systems calculations	Under revision (to be published 2020)	15316 series	Own method for heat pump calculations
SIA 385/2	DHW calculations	Revision to be started 2020	--	
SIA 387/4	Lighting energy calculation	Published 2017	--	Seasonal and hourly method; referenced by regulations
SIA Leaflet 2056	Electric energy calculations (except lighting)	New, published 2019	--	Mainly for the early design stage

In the building services design offices, building simulation is increasingly being used for the design process for several reasons:

- More reliable design data with less need for reserve;
- Better and easier to use software: some programs have very attractive and standards related "localisation" packages as well as BIM import facilities;
- Young people from the studies bring knowledge.

Based on this development, the industry also would like to have this accepted for building regulation conformity purposes, and the respective informal discussions are in process.

The readiness of the cantonal regulators for this discussion is very diverse and reaches from the quasi-acceptance to absolute refusal.

As one result of this development, it can be observed that the regulators would give precedence to a validation procedure against the development of a new software.

Outlook

As can be seen from the above tables, the revision of the Swiss standards according to the CEN EPB standards is in progress. In some areas it is done or nearly done. The last revised standards can be expected around 2021/22. ■