Spain

Building Code Implementation - Country Summary


Section I: Code Development

History

Starting year

In 1969 the first ordinances with for thermal insulation in buildings were issued in Spain. Spain issued its first energy code in 1979 (Norma Básica de la Edificación relativa a Condiciones Térmicas: NBE-CT-79), but it only covered the building envelope. The most recent code, Código Técnico de la Edificación (CTE), was first approved in 2006 (Royal Decree 314/2006, 17th March). The latest revisions to the energy requirements took place in 2013, when a number of corrections and supporting documents were issued. The Order FOM/1635/2013, form the 10th September 2013, is the update of the basic document DB-I «Energy saving» (Documento Básico DB-HE, Ahorro de Energía) of the CTE approved by RD 314/2006. The code is internationally known for mandating the use of solar panels. In addition to CTE, Spain has adopted the Regulation of Thermal Installations in Buildings (Reglamento de Instalaciones Térmicas en los Edificios, RITE, Royal Decree 1027/2007, 20th July), which is how Spain partially transpose the European Energy Efficiency Directive. The objective of RITE, is to lay down the energy efficiency and safety requirements to be met by heating and cooling systems in buildings which are intended to meet the thermal comfort and hygiene demands of people, during their design and sizing, construction, maintenance and use, and also to specify the procedures allowing it to be proven that these requirements have been met. RITE has also been revised in 2013, Royal Decree 238/2013, 5th April (http://www.measures-odyssee-mure.eu/public/mure_pdf/household/SPA37.PDF). Among other things the RD 238/2013 includes a greater number of heating and cooling facilities in the scope of application of RITE with the aim of transposing the provisions for thermal installations in buildings of the new Energy Efficiency Directive.

The Royal Decree-Law 8/2011 establishes the obligation to prepare the Technical Inspections of Buildings report (ITE) on those buildings more than 50 years old. The ITE is a type of preventive legal maintenance, whereby the buildings are routinely subject to the review of a series of factors that affect the safety of the building and of the persons that occupy it. ITEs are regulated by RDL 8/2011 and by the various Municipal Ordinances, which determine the conditions for carrying out the inspections.

1 http://www.measures-odyssee-mure.eu/public/mure_pdf/household/SPA36.PDF
But with the Law 8/2013 of 27th June a new essential tool replacing the ITE has been introduced, namely, the Assessment Report of Buildings (IEE) which is configured as a technical element that forces the review exhaustively comprehensive collective housing buildings. This new document required deals not only with safety issues but with the review of conservation issues, accessibility and energy efficiency (certificate) of all existing multi-family buildings that pre-date 1980.

The obligation of the Evaluation Report of the buildings (IEE) provides invaluable information for all to know the real situation of existing buildings in Spain.

Timeline/ road map
Spain has set a 5-year regular revision schedule. However, the code's site (http://www.codigotecnico.org/web/recursos/documentos/) regularly publishes updated comments and announces when the documents are open for public consultation and comments.

Existing codes

Structural coverage

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<th>Scale (National, regional, local, etc.)</th>
<th>Building size threshold</th>
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<tbody>
<tr>
<td><strong>Residential and commercial buildings</strong></td>
<td>National</td>
<td>All, except for buildings of technical simplicity with only one floor and non for residential, public or eventual use.</td>
</tr>
<tr>
<td>New buildings</td>
<td>National</td>
<td>All, except for buildings of technical simplicity with only one floor and non for residential, public or eventual use. The 2013 new CTE also requires the compliance with the Code when only refurbishing parts of the building (e.g. when replacing windows these should fulfil the new CTE requirements). All residential buildings where a major renovation of more than 25% of the envelope is carried out.</td>
</tr>
<tr>
<td>Existing buildings for retrofits</td>
<td>National</td>
<td>All, except for buildings of technical simplicity with only one floor and non for residential, public or eventual use.</td>
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Spain’s building energy code, CTE, is mandatory by law, however, enforcement is regional. Regional governments check energy efficiency compliance at design, and accredited third-parties conduct visual inspections to ensure that construction follows plans. Initially, Spain adopted RITE as a separate regulation on energy efficiency of heating and cooling systems in buildings, but later incorporated it into CTE. Various Spanish municipalities also have their own, stricter building energy codes.

Measures covered
- Envelope
- HVAC
- Service water heating
- Lighting
- Electric power
- Renewable energy [At least 30 to 70% of service hot water in new and renovated buildings must come from solar hot water. Minimum prescribed solar hot water requirements depend on location and expected demand within the building, maintenance and heat exchanger efficiency requirements. In new institutional (public) buildings larger than 5,000 m² and additions over 2,000 m², a certain percentage of electric energy must also come from solar energy³].
- Maintenance
- Option for performance-based approach

The update of the CTE DB-HE Basic Document on energy savings took place recently through Order FOM/1635/2013, pursuant to the provisions of Directive 2010/31/EU of 19 May 2010, on energy efficiency in buildings, amending Directive 2002/91/EC. This involves an increase in energy efficiency and in renewable energies different from the ones mentioned in the above Basic Document, and it also introduces a new section: HE.0: limitation of energy consumption. The energy consumption of buildings is limited according to the climate area where it is located and to the envisaged use for it. The energy consumption for the fitting-out, if applicable, of buildings or parts of them which, given that they are permanently open for reason of their use, will exclusively be met with energy coming from renewables. These demands shall be checked using a calculation procedure pursuant to the specifications established for that purpose.

All the above leads to the partial transposition of Directive 2010/31/EU into the Spanish legal system in terms of the energy efficiency requirements in buildings, as provided in its articles 3, 4, 5, 6 & 7, as well as Directive 2009/28/EC, in terms of a demand of some minimum energy levels coming from renewable sources in buildings, as set forth in its article 13. In like manner, the update of the DB-HE Basic Document on energy savings represents a first step to meet the objective of Directive 2010/31/EU of achieving nearly zero-energy buildings – before 31 December 2020 in all new buildings and before the end of 2018 in new buildings for public use.

Royal Decree 238/2013, 14th April, sets out the obligation of having a certificate of energy efficiency available to buyers or users of buildings. The said certificate shall include objective information on the energy efficiency of the building and reference values such as energy efficiency minimum requirements; in this way, the energy efficiency of the building or of a unit of it can be compared and assessed by either owners or tenants. Therefore, thanks to this royal decree, Directive 2010/31/EU is partially transposed in terms of the energy certification of buildings by consolidating Royal Decree 235/2013, of

5th April. It includes the requirements for the energy certification of buildings established in the Directive 2002/91/EC, and the Directive 2010/31/EU. These requirements provide the basic procedure of certification, systems of registration, control, inspection and publicity of such energy efficiency certificates.

This royal decree establishes the basic Procedure, the calculation methodology of energy efficiency. When buildings or units of them are built, sold or rented, the energy efficiency certificate has to be shown to the buyer or to the new potential tenant, and will be handed to the buyer or new tenant in compliance with the terms established in the basic Procedure.

The compliance of this Procedure is facilitated with the so-called acknowledged documents to certify energy efficiency - defined as technical documents, of a non-statutory kind - and with the acknowledgement of the Ministry of Industry, Energy and Tourism, and of the Ministry of Development. These documents may state the following content: software programmes for energy efficiency rating; specifications and technical guidelines on the technical and administrative application of energy efficiency certification; any other document facilitating the application of energy efficiency certification. The developer or the owner of the building or of part of it, either newly built or existing, will be in charge of requesting the energy efficiency certificate of the building or of part of it, whenever they are obliged to by this royal decree.

In the case of newly-constructed buildings, a certification of energy efficiency will take place in two phases: the energy efficiency of the project and the building’s energy efficiency once finished. The energy efficiency certificate shall be included in the execution project, stating the truthfulness of the information stated in it, and accounting for the execution of the building. The energy efficiency certificate of the finished building will state that the building has been completed in compliance with the provisions in the execution project and therefore, that it has achieved the rating stated in the project’s energy efficiency certificate. If such rating has not been reached, the initial energy efficiency certificate will be amended in a suitable way.

Buildings or units of existing buildings used by a public authority with a floor area over 250 m² and with a high frequency of use shall obtain an energy efficiency certificate and will be obliged to show the energy efficiency label from 1 June 2013.

Buildings or units of buildings privately owned accounting for with a high public frequency of use and with a total floor surface of over 500 m² will be under the obligation of exhibiting the energy efficiency label from 1 June 2013.

The relevant body in each Region in the field of energy certification of buildings will habilitate a registry for the certificates in its territorial scope, and will establish an independent control system for the certificates.
Correction/new codes

Motivation/policies for improving existing building energy codes
Kyoto protocol, European targets and directives, but also municipal ordinances. The City of Barcelona has long prided itself as a pioneer in promoting solar energy in Europe, having adopted innovative policies in 2000 and followed up with tangible results, where newly constructed buildings had solar panels. Inspired by the positive experience of Barcelona, many other municipalities under the administration of different political colours approved solar obligations all over Spain (e.g. Madrid in 2003).

The Institute for the Diversification and Saving of Energy (IDAE) actively promoted this trend by providing technical and legal advice to the interested municipalities.

Involvement of stakeholders in the development of codes
Meetings and educational courses are held on the upcoming changes to the energy sections of the code\(^4\). The Ministry of Public Works and Transport provides a comment period for stakeholders to review the new requirements.

Key methods used to engage stakeholders in the code development process
Training courses provide an excellent opportunity to engage with stakeholders. In addition, the Ministry maintains a website on the code.

Section II: Code Implementation

Administration

Administrative/enforcement structures

Government agency
Local autonomous communities implement the code. Specifically, local government officials are responsible for checking plans and inspecting construction. In those jurisdictions that do not have enough resources, the Ministry of Public Works and Transport may step in. As in many countries, some jurisdictions may de facto have less review and inspection because of resource constraints.

Private sector/third party
IEE in section is done by third parties.

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\(^4\) [Link](http://www.ietcc.csic.es/images/general/documentos/S4%20Novedades%20y%20bases%20del%20futuro%20Código%20Técnico%20Edificacion.pdf)
The roles of stakeholders

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<th>Design</th>
<th>Construction</th>
<th>Pre-occupancy check</th>
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<tr>
<td>The role of federal/central government</td>
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<td></td>
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<tr>
<td>The role of state/provincial and local government</td>
<td>Plan review</td>
<td></td>
<td>Certifies a technical competency of third party that carries out inspection.</td>
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<tr>
<td>Involvement of third parties and their role</td>
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<td></td>
<td>Visual inspection</td>
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Tools used for compliance checking

Software used for compliance checking
LIDER and CALENER are software applications sponsored by the Ministry of Housing and the Institute for the Diversification and Saving of Energy. LIDER and CALENER were publicly available for free use. LIDER was the method of calculation for verifying compliance with the Technical Construction Code. CALENER was the software for the energy certification of buildings. After the revision of the CTE in 2013 the existing software tools (LIDER and CALENER) were updated into a single tool: HULC (Unified Tool Lider and Calener). HULC is used to verify energy demand requirements of the Basic Document DB Energy Saving HE (HE1 and HE0) of the Technical Building Code. HULC has also been promoted by the Ministry of Industry, Energy and Tourism.

Capacity building and education

Education and capacity building programs that support code implementation
When the CTE was approved, the Ministry of Public Works and Transport and the Institute for Diversification and Saving of Energy, representing the Ministry of Industry, Energy and Tourism, organized training sessions in Spain’s 17 regions. The regions and engineer and architect associations provided CTE training courses, as well as a training course on the official software, LIDER (code compliance) and CALENER (energy rating software for all buildings).

Target groups for programs
Building professionals and local officials.

5 http://www.codigotecnico.org/web/galerias/archivos/ManualLIDER.pdf
6 http://www.gbpn.org/databases-tools/bc-detail-pages/spain
Section III: Compliance & Enforcement

Penalties, incentives and other mechanisms for improving compliance

*Penalties for non-compliance with energy provisions in codes*

- Rejection of construction permit
- Non-issuance of occupancy permit
- Fines (for not having, displaying or presenting erroneous info for obtaining a certificate)

*Incentives/rewards to go beyond minimum required performance level*
Spain offers several types of incentives to promote energy efficiency in buildings, such as capital grants for energy efficiency in buildings and low interest-rate loans.

Compliance assessment

*Assessments on rate and effectiveness of compliance*
Spain has not conducted any assessments of its compliance programs.

Section IV: Building Materials & Energy Performance Certificates

Building materials (e.g. windows, insulation, HVAC, lighting)

*Rating building materials*
The Spanish association Association for Standardization and Certification (AENOR) is responsible for developing technical standards and certification programs. The association maintains a website with numerous resources on these standards.

Spain follows European Union building material standards, CE marking. CE marking is mandatory for all building materials and cover aspects of energy performance. The EU’s Enterprise Directorate General launched a program to standardize evaluation of construction materials for their energy and environmental qualities.
Testing by certified test labs
The National Accreditation Agency (ENAD) certifies laboratories which test building materials. AENOR then issues certificates for the materials based on the certified laboratory tests. One such lab that tests materials for energy efficiency is the Test Innovation and Services Centre (CEIS).

Energy Performance Certificates

Building codes and energy performance certificates
The energy performance certificate (called Certificado de Eficiencia Energética del Edificio, in Spanish) provides an estimate of an annual primary energy consumption. The certificates also classify buildings based on CO₂ emissions into Classes A-G based on the modeled estimate of energy use\(^7\).

Energy performance certificates replacing codes in some regions/areas
The energy performance certificate is separate from the code.

Differences between energy performance certificates and performance-based approach of code compliance
Spain has separate regulations but same software (HULC) for demonstrating compliance with the building energy code and estimating energy performance for the energy performance certificate.

Enforcement of codes and energy performance certificates
For all buildings, they are enforced jointly.

Existence of national registry database for energy performance certificates
Regional level registries exist, and every 6 months national statistics are reviewed\(^8\). There is a site (http://www.iteweb.es/observatorio) that compiles statistics on technical inspections of buildings nationally.

\(^7\) http://www.minetur.gob.es/energia/desarrollo/EficienciaEnergetica/CertificacionEnergetica/Paginas/certificacion.aspx

\(^8\) http://www.minetur.gob.es/energia/desarrollo/EficienciaEnergetica/CertificacionEnergetica/Documentos/Paginas/documentosInformativos.aspx