PROPOSAL FOR SPANISH GUIDELINES* ON APPLICATION OF THE BUILDING CODE TO LEGALLY PROTECTED HERITAGE BUILDINGS

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1. INTRODUCTION

The protection of the historical heritage in Spain is regulated by Article 46 de of the Constitution, from which diverse laws of the Autonomous Regions and the Spanish Historical Heritage Act are derived.

Article 39 of the Spanish Act (and the equivalent articles of the Autonomous Regions) establishes in its Point 2 that the actions on immovable properties shall be addressed to their conservation, consolidation and rehabilitation. The diversity of meanings of these three terms within the sphere of the architectural heritage is well known. Despite this, none of these acts, which were published in the 1980s, offers any more than a scant detail of the development of these three possible tasks.

The new legislative approaches, which seek to correct these deficiencies, bring together in the brief space of a few articles the doctrines set out in the international documents which have been agreed over the course of the last two decades, on these three concepts and others, such as restoration, integrity, authenticity, etc.

Article 20.3 of the new Act on the Historical Heritage of Andalusia from 2007, which is representative of this new generation of laws, offers the key to everything in a few words:

“The materials used in conservation, restoration and conversion (rehabilitation) shall be compatible with those of the respective property. Reversibility criteria shall be followed in their choice, and they shall offer sufficiently verified behaviours and results. The building methods and the materials to be used shall be compatible with the constructive tradition of the property.”

In all probability, the ongoing revision of the rest of the laws of the Autonomous Communities or the State will follow a similar path, since this is the international attitude.

At the same time, this same legislative corpus also imposes the protection of movable properties. Indeed, it is quite common for a protected building to contain in its interior movable properties of cultural interest which form part of its own history. Therefore, obviously enough, the conservation, restoration and conversion (rehabilitation) actions shall not only protect the building itself but all the movable properties which may be sheltered in its interior as well.

Moreover, likewise derived from the Constitution, the protection of the rights of users of new buildings, or existing converted or renovated, relating to the safety and habitability, is also specified in the Act on the Planning and Development of Building (LOE) in 1999, and the Technical Building Code (CTE) in 2007

It is easy to verify that there are significant contradictions between the legislative ensembles (heritage and building): the LOE and the CTE only contemplate in their details newly-constructed works and currents building techniques, and their main objective is to provide assurances of safety and habitability for the users of the buildings, without hardly contemplating the protection of movable or immovable properties.

2. THE USUAL TYPE OF WORKS ON THE PROTECTED BUILDING

Before continuing it would be appropriate to explain what type of works are usually carried out on protected buildings.

Such works are the result of two main causes: a) the repair of pathological conditions, lesions, degradations, etc., and b) a structural or functional adaptation, according to the planned use of the building. Indeed, a combination of both causes is common in historical buildings.

Pathological conditions

The works to be carried out have the aim of repairing, as far as possible, lesions or deficiencies, which may be of two types:

a) structural faults, cracks, detachments, leaning, collapse, etc., or
b) moisture/damp

Generally speaking, in any specific case, no sure knowledge exists of the causes of the problem or of the type of works required to correct it.

The deficiencies with respect to fire safety, safety of use, the rest of the health-related habitability aspects (HS) and especially HS3, or the problems with respect to noise do not generate lesions or degradations.

Structural or functional adaptation

Works are required for one or more of the following reasons:

1) The preventive inspection of the building. Before carrying out the inspection, there is no knowledge of the possible deficiencies and much less of the works to be performed.

2) An increase in the users' safety or habitability requirements. The reasons for this may lie in one or more of the five standards or there may be some other type of reason, such as an improvement of accessibility.

3) Partial or total change of use of the building. The works to be carried out may be known, but not their effect on the building in relation to the five standards.

4) The opening of a historical building to the public for visits. This poses a large number of questions, mainly from the standpoint of structural, fire-related or use-related safety. There is no sure knowledge of either the existing deficiencies or the works to be carried out.

3. THE TECHNICAL BUILDING CODE (CTE) AND THE PROTECTED BUILDING

Let us take a brief look at the relationship which the legislation has established between the CTE and the architectural heritage by means of a quick glance at the key articles involved.

Article 2. Scope of application states that the "CTE shall be applied to the newly-built construction works" and likewise to "the works of expansion, modification, reform or rehabilitation which are carried out on existing buildings", as long as such application is compatible with "the nature of the intervention and, as the case may be, with the degree of protection which the affected buildings may enjoy. The possible incompatibility of application shall be justified in the project and, as the case may be, it shall be compensated by alternative measures which are technically and economically viable."

A key issue is what is meant by an "alternative measure". Let us look at its definition.

Article 5. General terms of compliance with the CTE states that "In order to justify that a building fulfils the basic standards which are established in the CTE, one may choose:

> a) to adopt technical solutions based on the Basic Documents (DBs), or
> b) to adopt alternative solutions, which are understood to be those which diverge wholly or partly from the DBs. The project designer or the works manager may, under their responsibility and with the promoter's prior consent, adopt alternative solutions, as long as they justify documentarily that the projected building fulfils the basic standards of the CTE because their performance is at least equivalent to that which would be obtained by application of the DBs."

Before continuing, it would be well to clarify what a DB is. *Article 3. Content of the CTE* defines it as a Basic Document which contains:

> "a) the description of the basic standards and their quantification,
> b) some procedures of which the use proves the fulfilment of said basic standards".

The various DBs devoted to the standards of safety [structural safety (SE) as opposed to Fire Safety (SI) or Safety of Use (SU)] or to the standards of habitability [energy saving-related habitability (HE), health-related habitability (HS), noise-related habitability (HR) form the main part of the Code].

In the document from November 2006 (referenced at the end of this paper), it may be seen that the Code, through its DBs, does not provide ways of solving the problems posed by its application to the works on existing buildings, except in one case: Annex D of the DB on Structural Safety. The text of this annex can provide certain directions and ideas.

4. THE "ANNEX D" OF THE CTE-DB (Basic Document) ON "STRUCTURAL SAFETY"

It is of great interest to point out what this annex states in its point *D.1.2. Prior considerations:*

"The direct use of the rules and regulations stated in this CTE is not appropriate in the structural assessment of existing buildings which have been constructed on the basis of earlier rules, for the following reasons:"

The most important of these reasons should be highlighted here:

"The current rules are usually based on standards which are different from and generally stricter than those which were in force at the time when the building was designed, for which reason many existing buildings would be classified as unreliable if they were to be assessed according to the current rules."

This is an idea which has been known for a long time to all the restoration professionals, an idea which appears in writing here in a document of compulsory observance for the first time. Obviously enough, it is applicable to the rest of the standards on safety or habitability.

However, the methods proposed en Annex D are only valid for buildings constructed in the 20th Century and not for those built before.

Nevertheless, the articles of Annex D demonstrate a key fact: in order to be able to consider the application of the Code to an existing building, it is indispensable to possess a very thorough knowledge of the building.

The need for such knowledge increases when it must be demonstrated that the solutions or procedures proposed by the Technical Code are incompatible, and even more when it comes to proposing alternative solutions.

The process of applying the CTE shall begin, therefore, with the indispensable assessment or knowledge of the existing building from all standpoints affected by the Code.

5. THE FEASIBILITY OF EQUIVALENT ALTERNATIVE SOLUTIONS

Upon considering a public or private development on a protected building according to some of the foregoing types of works on the basis, of course, of a thorough knowledge of the building, is it possible for there to exist alternative solutions which will allow “the projected building to fulfil the basic standards of the CTE so that its performance will be at least equivalent to what would be obtained by applying the DBs”?

If the historical building is not to be protected, all types of solutions are possible. Nevertheless, according to general experience and the studies which have been conducted (the document from December 2007 referenced at the end of this paper), whenever the objective of protecting the building is a priority, it will not be possible by any means to achieve 100% compliance with the Technical Code.

Accordingly, it is necessary to accept the fact that in the case of a protected building, it is impossible to comply with the totality of the Code in most cases, and provide the necessary legal coverage.

This raises two immediate issues. On the one hand, the circumstance of not being able to comply with the Code in its totality does not mean that partial compliance is impossible. Accordingly, the entire effort of analysing the building, acquiring a thorough knowledge of it and developing alternative solutions and applying them to the project and the work shall be addressed to achieving the maximum compliance. Since this compliance will never be complete, however, it is necessary to determine the consequences a lack of total compliance will have on the pertinent legal responsibilities and on the use of the various parts or ensemble of the building. There will be limitations of use which will form an integral part of the process.

It would appear necessary to provide an informative action for the general public through the Ministry of Housing and, naturally enough, through the Ministry of Culture in order to highlight the fact that a protected building cannot be expected, in addition to being a cultural property, to fulfil all the standards of new buildings, which lack precisely this cultural benefit.

In accordance with all this, it is necessary to develop a document establishing the procedure to adapt the compliance with the CTE to the works on protected buildings. This document has been called the “Guide to Application of the CTE to Protected Buildings” (GACTEP).

6. BASIC CONTENT OF THE GACTEP

As already indicated, it is the result of work (November 2008) promoted by the Higher Council of Architects referenced at the end of this paper.

The Guide is structured in three parts:

The first part contains the rules and general terms of application.
The second part is formed by the so-called Assessment Guides (GEs) for protected buildings.
The third part comprises the Feasibility Study Guides (GVs).
The building assessment has a twofold objective:

a) to inform on the degree of compliance of the building in its present condition with the standards posed by the CTE, and

b) to foresee and appraise, depending on its planned use, the real feasibility of adapting the building, by means of restoration or rehabilitation works, to the standards of the CTE without detriment to the preservation of protected values or elements.

In the almost absolute majority of all cases, the degree of compliance of the building in its present condition with the CTE will be minimal and it will therefore be necessary to proceed, within the frame of the restoration or rehabilitation works, to its strengthening, repair, adaptation or accommodation according to the criteria established in the GVs. According to the envisaged use of the building, these actions will be more or less complex.

The feasibility study shall resolve the pertinent deficiencies or incompatibilities on the basis of the criteria provided by the GVs. In the event of scant compliance, the feasibility study will allow solutions to be found which will increase performance to the maximum without affecting the protected aspects. In the case of total non-compliance, it shall state the alternative solutions or measures which will allow the limitations of use to be reduced.

7. LIMITATIONS OF USE AS A RESULT OF NON-COMPLIANCE OF THE CTE

In protected buildings there may be activities which are not found in the classifications stated in the CTE. In such event, a specific study shall be carried out on the risk associated with such particular activities in the Building Assessment and in the Feasibility Study, based on the risk assessment factors and criteria stated in Article 2, Point 7 of the CTE, notably including the following:

User characteristics; number of persons commonly occupying, visiting, using or working in the building; vulnerability or need for special protection by reason of such persons' age or disability; familiarity with the building and its means of evacuation, and protection level of the building.

If the Feasibility Study were to conclude that there exists an activity with a risk which cannot be avoided or reduced (such as the ascension of a bell-tower) it will be stated in the Project document called "Limitations of use" and in the section of the documentation on the work called "Confirmation of the Limitations of Use".

Both in the project statge and on completion of the work, the promoter shall be informed of the limitations of use. In turn, the promoter shall report the limitations of use to the persons in charge of the management of the building's use so that they may ensure compliance with such limitations.

8. ASSESSMENT AND FEASIBILITY STUDY PROCESS

The assessment shall be in three stages:

Stage 1:

a) Compilation of data, especially on the history of the building and its surroundings
b) Initial inspection of the building and its surroundings

Stage 2:

a) Evaluation of possible effects of envisaged new uses
b) Formulation of hypotheses of the causes of the pathological conditions and determination of tests, etc. for the verification of such causes
c) Update all information depending on possible effects and hypotheses
d) Definition of verifications, tests, etc.

Stage 3:

a) The carrying out of verifications, tests, etc.
b) If there are no pathological conditions, an Initial Opinion-Report shall be prepared on the compliance with SE SI SU HS HR. If pathological conditions are indeed observed, confirmation

shall be provided of the respective hypotheses (if they are not confirmed, the process returns to Stage 2).

The Feasibility Study comprises two stages:

Stage 4:

a) Initial proposal of repair of lesions, or initial approach to the solutions for the structural or functional accommodation of the building.
b) Verification of incompatibilities with the CTE and, as the case may be, determination of alternative solutions or measures.

The overall path from Stages 1 to 4 is reversible. If no possible alternative solution is found, it is necessary to go back and re-begin the process in order to continue studying the building.

Stage 5:

Development of a feasible definitive proposal on the repair of the visible lesions, or development of feasible alternative solutions, allowing work to begin on the development of the project.

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9. PROJECT DOCUMENTATION

In addition to all the terms established in Article 6 of the CTE, the following documents shall be developed and contained in the project:

a) The document entitled “Building Assessment”, which shall be prepared according to the criteria established in the GEs.
b) The “Feasibility Study” document shall resolve the respective deficiencies or incompatibilities by means of the criteria provided in the Documents for the Feasibility Study. In the event of scant compliance, it shall allow solutions to be found which will increase the performance to the maximum without affecting the protected aspects. In the event of total non-compliance, this document shall state the alternative or compensatory measures or solutions which will allow the reduction of the limitations of use. The Feasibility Study shall be prepared according to the criteria established in the GVs.

In order to be able to develop the basic project, it will be necessary to have carried out the Prior Assessment and the Feasibility Study.

c) The basic project shall define the general characteristics of the restoration or rehabilitation work and its final performance by means of the adoption and justification of specific solutions defined in accordance with the criteria of the DVs and, as the case may be, with the Catalogue of Solutions, taking into consideration the assessment which has been previously carried out.

d) The “Provisional Limitations of Use” document, in which the consequences, on the use of the building, of the deficiencies in strict compliance with the CTE which are defined in the Feasibility Study shall be specified.

10. COMPLETION DOCUMENTS AND USE OF THE BUILDING

The restoration, conversion (rehabilitation) or repair works on the building shall be carried out in accordance with the project. However, the access to areas of which it has not been possible to obtain an exact knowledge in the assessment stage may require modifications of the project. In such event, the modifications shall be decided by the works manager with the promoter’s prior consent.

The “Confirmation of Limitations of Use” document shall specify the limitations on the use of the building due to deficiencies in the strict compliance with the CTE which were initially defined in the Project, and the verification, extension or reduction of such limitations as a result of the solutions finally adopted in the works.

The building and its facilities shall be used appropriately in accordance with the instructions of the “Confirmation of Limitations of Use” document, refraining from making any use which is incompatible with the envisaged use.

The persons in charge of the management of the building’s use will be responsible for informing the users of the risks which they take if they make any use which contravenes what is stated in the “Confirmation of Limitations of Use” document.

Studies on which this paper is based:

1) Commissions from the Higher Council of Architects’ Associations of Spain to the Polytechnic University of Catalonia (UPC)

November 2006
El nuevo Código Técnico de la Edificación y la Restauración Arquitectónica. Primera fase: estado de la cuestión. (The New Technical Building Code and Architectural Restoration: Current Status of the Issue)
Working team: José Luis González, Albert Casals, Javier Sanz, architect-professors at the UPC, and José Luis Pérez López of “Pérez López Abogados Asociados S.L”

November 2008

Aplicación del CTE a las obras de Restauración Arquitectónica. (Application of the CTE to Architectural Restoration Works)

Working team: José Luis González, architect; Albert Casals, architect; Soledad García-Morales, architect; Alicia Dotor, architect; Belén Onecha, architect; Santiago Rovira, industrial engineer; Pere Roca, civil engineer; Francisco Arriaga, architect.

2) Commission to the UPC from the Territorial Action and Planning Area of the Directorate-General of the Cultural Heritage, attached to the Department of Culture and Communication Media of the Autonomous Government of Catalonia.

December 2007

Anàlisi de projectes de restauració de monuments pel que fa l'aplicació del Codi Tècnic de l'Edificació i estudi de possibles solucions alternatives. (Analysis of Monument Restoration Projects from the Standpoint of the Application of the Technical Building Code, and Study of Possible Alternative Solutions)

Working team: José Luis González, architect; Albert Casals, architect; Alicia Dotor, architect; Belén Onecha, architect.

3) Other own texts:

José Luis González Moreno-Navarro. "El código técnico de la edificación y el patrimonio arquitectónico" (The Technical Building Code and the Architectural Heritage) in the journal *Patrimonio Cultural y Derecho,* nº. 10, 2007

José Luis González Moreno-Navarro. "El caso del código técnico en la intervención en el patrimonio" (The Case of the Technical Code in the Intervention on the Heritage) for the conference: *"XXX Curset. Jornades sobre intervenció en el patrimoni arquitectònic" (Conference on intervention in architectonic heritage)* COAC. Barcelona, 13-16 December 2007

4) Other texts:

ISCARSAH (International Committee on Analysis and Restoration of Structures of Architectural Heritage) ICOMOS. *Recommendations for the Analysis and Restoration of Historical Structures*. 2003

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Scottish Building Standards Agency. *Guide for Practitioners 6: Conversión of Tradicional Buildings Part 1 y 2.* Edimburg, 2007.

Technical Conservation, Research and Education Group. Historic Scotland

Cost. European Science Foundation. *Cost Action C17: Built Heritage Fire Loss to Historic Buildings: Final Report. Research Report.* 2007

International Standard ISO 13822. *Bases for design of structures. Assessment of existing structures. Annex I. (informative). Heritage structures.* 2008.