

# CHAPTER 15

## QUALITY CONTROL OF DESIGN

In the scope of this Code, construction products manufactured or legally marketed in the Member States of the European Union and by the signatories to the Agreement on the European Economic Area may be used, provided these products, complying the standards of any Member State, ensure safety and intended use in a level equivalent to that required by this Code.

This level of equivalence shall be accredited as provided in Article 4.2 or, where appropriate, Article 16 of Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws regulations and administrative provisions of the Member States on construction products.

What stated in the preceding paragraphs shall also apply to construction products legally manufactured or marketed in a State which has an association agreement with the EU customs, when the Agreement recognizes for those products the same treatment as those manufactured or sold in a Member State of the European Union. In these cases the level of equivalence shall be established by applying for this purpose, the procedures laid down in this Directive.

### **Article 82. Control of the design**

#### **82.1 General**

The Owner may decide to have an control of the design carried out by having a quality control body as described in section 78.2.2 with the aim of checking:

- that the works referred to in the design are sufficiently defined for construction; and
- that they comply with requirements laid down for safety, function, durability and environmental protection in this Code and also those laid down in any applicable regulations.

In works promoted by Local Authorities, the design control shall be carried out, if applicable, without prejudice to the provisions laid down by Royal Legislative Decree 2/2000 of 18 June, approving the revised text of the Law on Local Authority Contracts and its underlying regulations.

The fact that the Owner may conduct the design control does not assume any alteration to the attributions and responsibilities of the design Author under any circumstances.

#### **82.2 Design control levels**

When the Owner decides to carry out a design control, he shall choose one of the following levels:

- a) normal control level
- b) intensive control level

The control body shall identify the aspects to be checked and shall develop a control procedure, according to the type of work, which is set out in Annex 20 as a guide.

According to the level of control adopted, the checking frequency shall be at least as set out in table 82.2.

Table 82.2

| Type of element          | intensive level control |           | Notes V  |
|--------------------------|-------------------------|-----------|--|
|                          | No.                     | intensive |  |
| Ground plates            | 10%                     | 20%       | At least 3 ground plates                           |
| Foundations slabs        | 10%                     | 20%       | At least 3 squares                                 |
| Pile caps                | 10%                     | 20%       | At least 3 pile caps                               |
| Piles                    | 10%                     | 20%       | At least 3 piles                                   |
| Containment walls        | 10%                     | 20%       | At least 3 different sections                      |
| Basement walls           | 10%                     | 20%       | At least 3 different sections                      |
| Winged walls             | 10%                     | 20%       | At least 1 of each type                            |
| Pillars and bridge piles | 15%                     | 30%       | At least 3 sections                                |
| Load-bearing walls       | 10%                     | 20%       | At least 3 sections                                |
| Girder beams             | 10%                     | 20%       | At least 3 girder beams of at least 2 compartments |
| Rings                    | 10%                     | 20%       | At least two rings                                 |
| Decks                    | 10%                     | 20%       | At least two compartments                          |
| Arches and vaults        | 10%                     | 20%       | At least one section                               |
| Plates                   | 10%                     | 20%       | At least 3 plates                                  |
| Stairways                | 10%                     | 20%       | At least two sections                              |
| Slabs                    | 15%                     | 30%       | At least 3 squares                                 |
| One-way floors           | 15%                     | 30%       | At least 3 lengths                                 |
| Special elements         | 15%                     | 30%       | At least 1 per type                                |

Note: Despite the above, 100% of elements subject to main torsion force and, in general, elements susceptible to fragile breaks or containing parts with possible no-load thrust, complex nodes, complicated changes in geometry or reinforcement, anchorage, etc.

### 82.3 Design control documentation

Whatever the level of control applied, the control body shall deliver to the Owner a report written and signed by a natural person, with an indication of his qualifications and duties within the body that shall show at least the following aspects in accordance with the control procedure adopted:

- a) requesting Owner
- b) identification of the quality control body or organisation signing the document
- c) specific identification of the design subject to control
- d) identification of control level adopted
- e) control planning in accordance with the procedures adopted
- f) checks carried out
- g) results obtained
- h) report on cases of non-compliance detected, indicating whether these refer to the appropriate definition of the design for construction or whether they affect safety, function or durability
- i) evaluation of cases of non-compliance

- j) conclusions, and in particular a specific conclusion for the presence of reserves that could lead to undesirable events if tendering for or constructing works

In view of the above report, the Owner shall take the appropriate decisions before the application to tender or, if appropriate, the construction of works. In the case of non-compliance, before taking decisions, the Owner shall notify the design Author of the contents of the control report and the latter shall:

- a) rectify any non-compliance detected in the design control, or
- b) submit a written report signed by the design Author that ratifies and support the solutions and definitions adopted in the design, adding any complementary document considered necessary.