# AEDILITIA

## A WEBSITE TO COMMUNICATE WITH
## THE OPERATORS OF THE CONSTRUCTION WORLD

**SUMMARY**

**www.aedilitia.itc.cnr.it** is a website designed and realised by ITC-CNR to facilitate the absorption of the new Community provisions proposed by directive 89/106/EEC "Construction Products". This opportunity allowed co-operation and transfer of professional competences among experts of different technologies. The website, which is organized by pages created on the flight, offers the sector operators a flexible training environment, it allows a constant upgrade of a matter which is subject to continuous structural changes and enables users to share and contribute to the enrichment of contents repository.

**INTRODUCTION**

The Italian construction sector touches an investment of about 120.000 billion Euro, which is more or less 10% of the GDP, and it is realized mainly by small and medium enterprises (SMEs) all over the national territory. The operators active in the sector are about 2.000.000 and the enterprises involved in it are generally small enterprises, therefore, not very well equipped to autonomously and constantly manage the technical information they need. It can be therefore asserted that the sector is characterized by large figures, great distances and extensive information to be managed in real time.

Another aspect to be taken into account is that the number of Italian Internet surfers are more than 20.000.000 and that this figure nearly represents 35.5% of the overall italian people, so, as it may be easily guessed, the realization of Internet-based services may represent a good response to the sector's training needs.

More than ten years after its publication, the Directive is finally being enforced.

Its enforcement makes it a more and more important instrument for the free circulation of products within the European Community and the extent of its incidence on the production world is deeper than the impact of Directives on other sectors so far.

Its coming represent a downright Copernican revolution for the European construction sector whose technical and normative development has so far taken place in connection with national situations and traditions.

As far as Italy is concerned, national regulations covering construction products, both at voluntary and compulsory level, have not progressed that far, therefore, the impact of the new normative and procedural technical language proposed by the Directive will certainly have to face an arduous assimilation phase.

Finally, there is a very large number of designers, contractors and public administrations that must deal with the new system to understand it and apply it in a correct way. Furthermore there are many export agents in the construction products sector mainly in the fields of tiles, taps, sanitary appliances, sandwich panels, membranes, etc..

The Construction Technologies Institute of the National Research Council (ITC-CNR) originates from the merging of four Institutes of the National Research Council offering competences about building industrialization and technology, refrigeration technology, information multimedia technologies  and housing and social infrastructures.

The scientific objective of the new Institute is to carry out in a permanent way and at a level of excellence, inter-disciplinary research, certification and training in the field of new technologies to be applied in the construction sector.

Its main goal is to improve the quality of life and safety of construction works.

To this end, ITC-CNR deemed it appropriate to make available a free information service, in the certainty that it would correspond to the spirit of its own Statute for, since its foundation, it has been working in the field of construction products' qualification and following each day the evolution of the Construction Products Directive.

All of these factors, together with the more and more urgent need to rightfully face the new situation and the new obligations, but most of all the new opportunities have concurred to lead ITC-CNR, in collaboration with A.N.C.E. "National Association of Building Constructors" and F.IN.C.O. "Federation of Industries Products Installation and Services for Constructions" to develop the Internet website www.aedilitia.itc.cnr.it, having the goal to guide, and mainly to awaken firms and operators of the construction sector to the marking of their products in compliance with directive 89/106/EEC "Construction Products".

The development of this website is considered as a further extension of the information services that ITC-CNR (ex ICITE-CNR) has realised for construction sector in the EC project I-SEEC [Bloomfield et al., 2001] founded by the 5th Framework Programme.

## WWW.AEDILITIA.ITC.CNR.IT

### The offered services

The purpose was to develop a system for a web-based interactive management of a documentary base offering the following services:

- Publication and updating of information related to the Certification of Construction Products;
- Guide for users to exploit  the materials following different paths;
- Consultation of available resources and list of references;
- Supporting documents for the design and supply of educational programs;
- Creation of binders where ITC-CNR operators and users may share documents, images and sets of forms and work on them in a co-operative way;
- Interaction with users in order to meet their requests for information;
- Allowing all concerned users to take part in the development of the documentary base by suggesting remarks, comments and widening of topics that may be used as extensions of already available documents;
- Allowing ITC operators full autonomy and the introduction of any changes in the structure of the website;
- Collecting and processing data about user registration and recognition;
- Exchanging information with all concerned people;
- Taking part in forums abuot the website topics;
- Making questions and submitting requests to a specialized expert staff and consulting their replies.

### The website content organization

The documentary base offer the following **documents** to online access and search:

Directives;
- EC reference documents;
- EC guidance papers;
- Interpretative documents;
- EOTA guidelines;

- CEN mandates;

- EOTA mandates;

- References to Harmonized European standards;

- References to Supporting European standards (and other similar documents);

- References to Draft harmonized standards;

- References to Draft supporting standards (and other similar documents).

- GNB (Group of Notified Bodies) reference documents;

- GUCE communications;

- GURI communications;

- EC general decisions;

- EC decisions concerning Conformity Attestation;

- National decrees;

- Definitions;

- Educational documents

Documents may be customized with remarks, comments and details. All documents are classified according to their type:

- General information (title, document number, author, date, etc.);

- Specifications of any change introduced in the document and introduced in other documents by the concerned document;

- List of correlated documents;

- List of correlated products;

- Text of the document in .pdf format (with the exception of standards and draft standards).

All **products** so far interested by the Directive are also available. Products have been grouped together according to the families defined in CEN and EOTA Mandates. The main principle used to create such families concerns the presence of specific standards covering individual products, with consequent creation of families that are more complete and detailed than others. Draft standards are an effective tool to follow the trend of standards.

Products are classified according to:

- Type of material (e.g. concrete, metal, wood, plastics, etc.);

- Type of performance (e.g. double glazing systems, safety glass, etc.).

New documents (standards, draft standards, EOTA guidelines, etc.) will require the inclusion of new products that will complete or further detail the already available product families. Each product is associated with:

- The list of documents it is correlated with;

- The form of each single document, as previously described;

- The relationship with the family it belongs to;

- The conformity attestation system related to the product or to the whole product family, identified through the "EC Decisions for the attestation of conformity".

The documentary base also contains a list of products families and products which are considered in the perspective of their intended use. Products are associated to one or more notified bodies through the conformity attestation system. Notified bodies operate as certification bodies, inspection bodies or test laboratories, still related to the same system.

Each product or family is correlated with:

- The conformity attestation system related to the single product;
- The list of notified bodies for the specific product or for the whole products family.

The documentary base also contains references concerning each **notified body** operating in the European area as a certification body, inspection body or test laboratory; each one is therefore characterized by:

- General information (address, notification number, etc.);
- List of the concerned products, each one specified by:
  - The conformity attestation system applied
  - The EC decision for the relevant conformity attestation
  - The function performed by the notified body (certification bodies, inspection bodies or test laboratories) with reference to that product.

The "EC Decision for the attestation of conformity" defines **systems 1, 1+, 2, 2+, 3 and 4** on the basis of a product or of a whole family of products; these systems establish the tasks for manufacturers and notified bodies (if envisaged by the system) to accomplish in order to affix the EC mark. Each systems is linked to:

- The list of products for which a specific system is requested;
- The list of notified bodies operating at European level according to a specific system.

Aedilitia offers a continuously updated **list of web addresses** (e.g.: CEN, UNI, EOTA websites, etc.) giving access to new documentation for further analysing or developing the topics related to the Directive.

**The data structure supporting Aedilitia's contents**

Users interact with the documentary base by means of ASP programs that build on the flight user pages while accessing and retrieving data from a database constituting the skeleton of the contents archive.

The fulcrum of this database scheme (Figure 1) is represented by the relation **binders** that link together users, documents, products, … Binders may be assigned to 0 to n users and may contain every sort of forms and documents organized according to priorities which are set by the binder's author.

Recognized users are given access to three binders assigned to him:

- *Public*
  - to access surfing pages, registration forms, services to communicate with experts.
- *Private*
  - To create binders to place uploaded documents or those that are already on the website assigning them an accessibility, a hierarchy and a meaning according to the context
  - To manage users and assign them to binders.

- o Insert new documents in a general folder without having to assign them an order or a hierarchy.
- o To insert new products and assign them a hierarchy.
- o To assign hierarchies and relations to the products.
- o To assign hierarchies and relations to the documents.
- o To link together documents, products, Bodies, Systems.
- *Educational*
  - o Offers one or more binders containing links to educational documentation
  - o It allows to create a personal bookmark to collect and annotate documents.
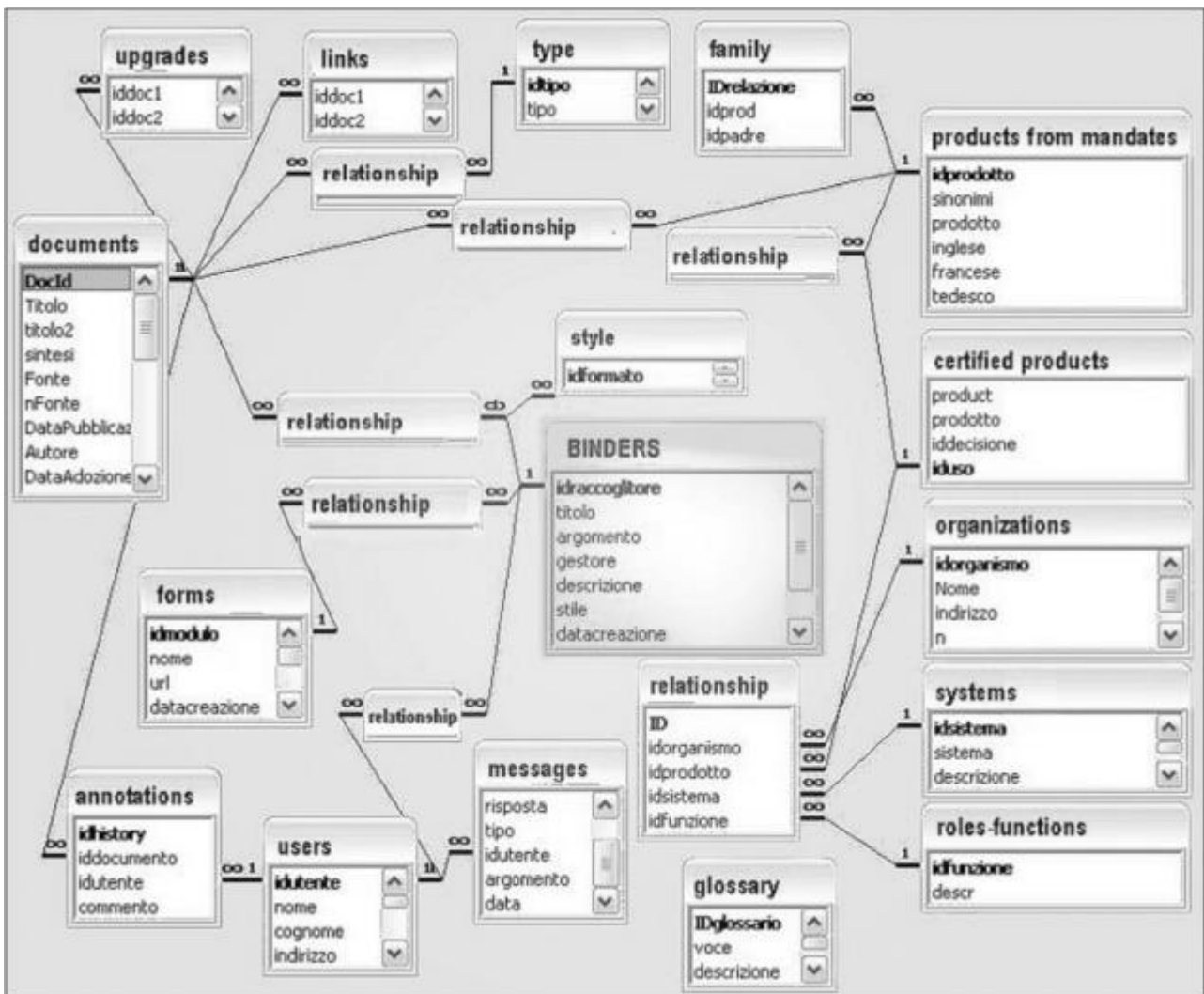


*Figure 1 The database scheme that organizes the documentary base:
the ENTITY-RELATIONSHIP associations are outlined*

**User interaction**

The homepage drives users toward three sections:

- Website presentation and credits
- Search area for seeking products or documents
- Documents appeared in the last 90 days

The search area shows different icons, each one offering a different option for a simple and quick exploration of the website. Search icons are available

for **products**

- Alphabetical list of products
- Products families
- Free search by entering a name or a part of it in the appropriate field

for **documents**

- Document typology
- Free search by entering a word/number in the appropriate field

for **Notified Bodies**

Notified Bodies may be consulted through the alphabetical list or indirectly through the table of Conformity Attestation Systems

for **conformity attestation systems**

They can be identified only through the "EC Decisions for the attestation of conformity". These systems allow to identify products and related notified bodies.

for **FAQ**

On the basis of the discussions taking place among users and experts, a binder of the most frequents answers-questions is kept through an index called "The expert's answers". This binder can be used to get information and facilitate more detailed investigations on different subjects.

for **Glossary**

The website provides a list of the terms it contains (in Italian and in English) integrated by a description, an indication of the reference document and a short (if any) for it.

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A **Help** is also available to assist the user during his web surfing.

**An example of consultation**

*User:* manufacturer

*Request*: what procedure should be followed to affix the EC mark on a product:

- Identify your own product by searching through:
    - o  Alphabetical list of products
    - o  Products families
    - o  Free search

- Once the product has been identified, search through the list of related documents (reference EC Decision and Mandate, standards or draft standards or Eota guidelines) and related forms.
- Select the EC Decision for the attestation of conformity and through it identify the conformity attestation system concerning the product.
- Get in the "conformity attestation system" section  and select the previously found system. This will display:
    - o  The list of products or products families for which the system is envisaged.
    - o  The list of notified bodies using that system for that specific product.


## CONCLUSIONS AND FURTHER DEVELOPMENTS

The aim of the project was to develop a website designed to become a main access for all the problem areas concerning the building products certification.

Aedilitia is therefore intended to provide information but also to become a concrete operating tool for anyone wishing certification for his own products and also an interactive distance training tool address to either working staff or university students.

This web site shall provide general information about certification activities in Italy and in Europe and shall enable users to find their way through the complex world of voluntary and compulsory certification.

The Aedilitia website development took about one year to a working group composed by content providers and customizers, information and communication technologists and application developers who also dealt with the transfer of competences. During this year several subsequent assumptions were made about the website final data structure which had to respect the evolutions in certification matters and the trends of the operators' information demands.

The final product has a low cost if compared to the market of equally complex web portals.

This was made possible by the excellent co-operation and joint responsibility of all the people involved in the project who achieved a good integration of competences allowing future structural changes to be introduced without having to resort to the intervention of specialists.

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