AEDILITIA WEBSITE TRIGGERS THE CONSTRUCTION SECTOR ABOUT EC REQUIREMENTS

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SUMMARY

www.aedilitia.itc.cnr.it is a website designed and realised by ITC-CNR (Construction Technologies Institute, National Research Council) to facilitate the absorption of the new European Community provisions [EEC, 1988]. This opportunity allows co-operation and transfer of professional competences among experts of different technologies. The website, which is organized by pages created "on the fly", offers the construction sector operators a flexible training environment, it allows a constant upgrade of content material subject to continuous structural changes and it enables users to share and contribute to the enrichment of content repository.

INTRODUCTION

The Italian construction sector comprises an investment of about 120 billion Euro, per year, which is more or less 10% of the Italian GDP. This construction activity is realized mainly by small and medium enterprises (SMEs). The contractors and agencies active in the sector number about 2 million and these enterprises are generally small enterprises and therefore are not very well equipped to autonomously and constantly manage the technical information they need. It can therefore be asserted that the sector is characterized by large figures, great distances and extensive information that needs to be managed in real time.

Another aspect to be taken into account is that the number of Italian Internet users are more than 20 million and that this figure nearly represents 35.5% of the overall population It may be easily guessed that the creation of Internet-based services may provide a good response to the sector's training needs.

More than ten years after its publication, the 89/106/EEC 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 effect on the production world is deeper than the impact of Directives on other sectors so far.

Its adoption will 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 sufficiently: 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 Italian export agents in the construction sector concentrating on products such as tiles, taps, sanitary appliances, sandwich panels, membranes, etc.

The Construction Technologies Institute of the National Research Council (ITC-CNR) originated from merging four institutes of the National Research Council, each offering competencies about building industrialization and technology, refrigeration technology, information multimedia technologies and

housing and social infrastructures. The scientific objectives of the new institute are to carry out long-term, excellent and inter-disciplinary research and 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 and necessary to provide a free information service, in the certainty that it would correspond to the spirit of the goals and objectives established in its own Statute. Since it's the institute's foundation (1962 as ICITE-CNR), it has been working in the field of construction products' qualification and has been constantly following the evolution of the Construction Products Directive.

All of these factors, together with the more and more urgent need to address its new situation and its new obligations, as well as the new opportunities have 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". Its goals are to guide construction practice, and to enlighten 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 completed for the construction sector in the 5th Framework Programme EC project, named I-SEEC [Bloomfield et al., 2001].

WWW.AEDILITIA.ITC.CNR.IT

The services offered

The purpose of the system is to develop web-based interactive management for documents 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 document content 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 about the website topics;
- Making questions and submitting requests to a specialized expert staff and consulting their replies.

The website content organization

Different **document typologies** are offered for online access and search (Figure 1).
Documents will be customized to include 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;
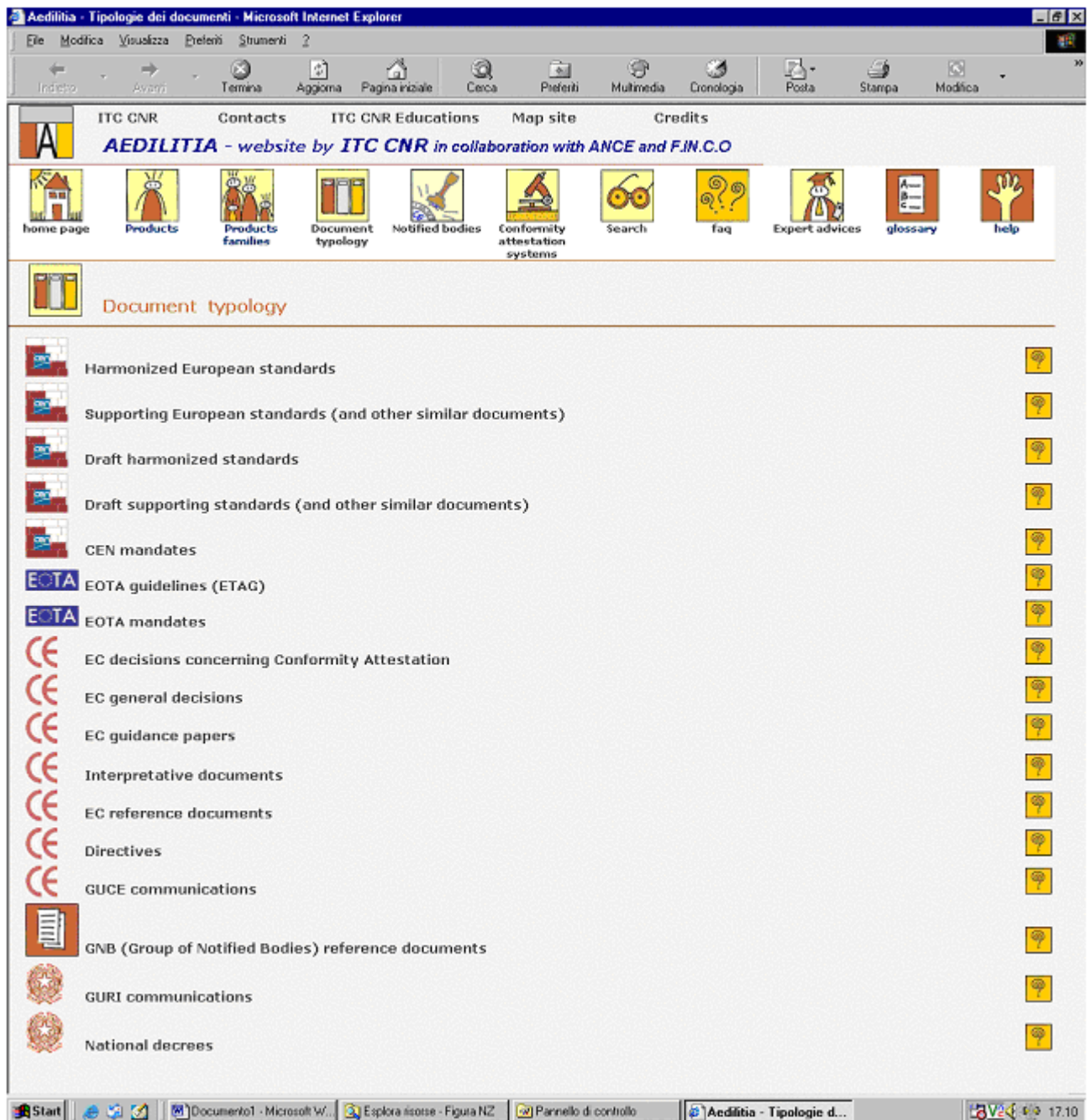- Text of the document in .pdf format (with the exception of standards and draft standards).

Figure 1 Aedilitia web page showing user interaction in the search area

All **products** related to 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 to which it is correlated;
- The form of each single document, as previously described;

- The relationship with the family to which it belongs;
- The conformity attestation system related to the product or to the whole product family, as identified through the "EC Decisions for the attestation of conformity".

The document content also identifies 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 document content 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 required 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 the user access to any new documentation for further analysis or for developing the topics related to the Directive.

The data structure supporting Aedilitia's contents

Users interact with the document content by means of ASP programs that build "on the fly" user pages while accessing and retrieving data from a database that is the skeleton of the contents archive.
The fulcrum of this database scheme (Figure 2) is represented by the relation **binders** that link together users, documents, and 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 them:
- *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.
  - Insert new documents in a general folder without having to assign them an order or a hierarchy.
  - To insert new products and assign them a hierarchy.
  - To assign hierarchies and relations to the products.
  - To assign hierarchies and relations to the documents.
  - To link together documents, products, Bodies, Systems.
- *Educational*
  - Offers one or more binders containing links to educational documentation
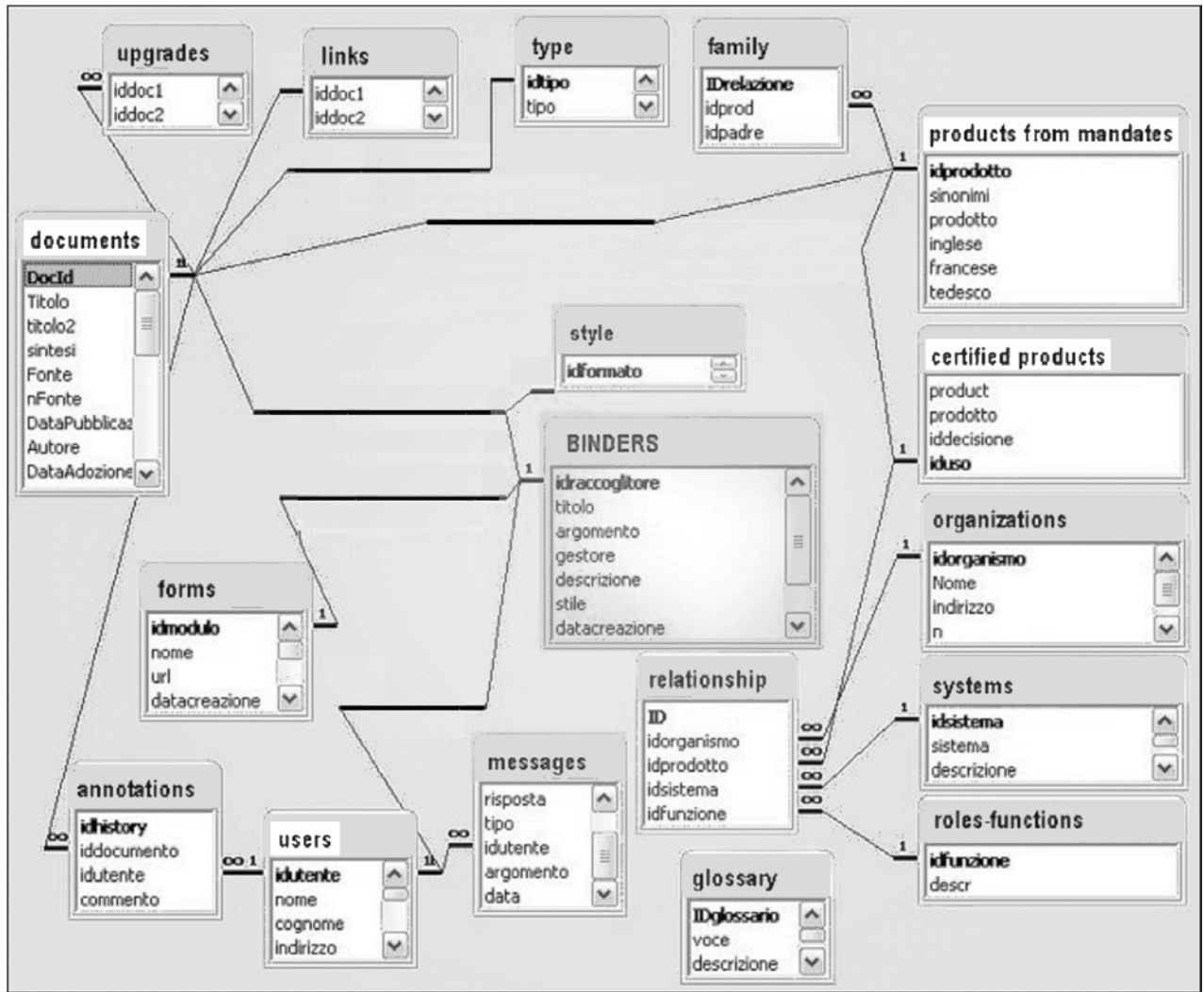 - It allows to create a personal bookmark to collect and annotate documents.

Figure 2 The database scheme that organizes the document content

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, as showed in the banner of figure 1. Note that Notified bodies may be consulted through the alphabetical list or indirectly through the table of Conformity Attestation Systems. Furthermore, on the basis of the discussions taking place among users and experts, a binder of the most frequently asked-questions is accessed through Expert advices. This binder can be used to obtain information and to facilitate more detailed investigations on different subjects.
A Glossary of the terms (in Italian and in English) used by Aedilitia is provided, integrated by a description, an indication of the reference document and a short description (if any) of it.

A **Help** is also available to assist the user during 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:
  - Alphabetical list of products
  - Products families
  - 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, European Organisation for Technical Approvals, 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:
  - The list of products or products families for which the system is envisaged.
  - The list of notified bodies using that system for that specific product.

CONCLUSIONS AND FURTHER DEVELOPMENTS

The aim of the project is to develop a website designed to become a main access point for all the problem areas concerning the building products certification.
Aedilitia is therefore intended to provide information but also to become a reliable operating tool for anyone wishing certification for their own products and also as an interactive distance training tool address for either working staff or university students.

The Aedilitia website development took about one year for a working group composed of 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 comply with the evolutions in matters dealing with certification and the trends of the users' information demands.

The final product has a low cost when compared to the market of equally complex web portals. This was made possible by the excellent co-operation and joint responsibility from all the people involved in the project and they achieved a good integration of competencies allowing future structural changes to be introduced without having to resort to the intervention of specialists.

The Aedilitia website is now under extension to provide general information about certification activities in Italy and in Europe and to enable users to find their way through the complex world of voluntary and compulsory certification.

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