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## THE C.MAT – THE DATABASE FOR THE CONSTRUCTION MATERIALS

BY

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**Abstract.** The need of properly organizing the construction activity from both technical and economical point of view is more present today than ever before. As the construction industry can not be separated from the economical part it is mandatory to find a way to merge these elements, thus obtaining a more efficient construction industry. One of the problems that need to be solved is diminishing the gap between the technical consumption of construction materials and the consumption of materials reflected in the accounting of a construction firm. This can not be obtained without a solid and common database that should cover all building materials. The C.MAT database could enable the companies producing building materials to register all the selling products, using the same coding system, the architects to use it in the estimation rules and thus, the construction companies would be forced to use the same building material as recommended by the architect.

**Key words:** estimate norm; accounting program; construction firms; real consumption.

### 1. Introduction

The construction activity is not just about building more or less spectacular or functional constructions but has also an essential economic component that is manifested in the actual consumption of materials.

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The actual consumption of materials is actually a much more complex problem. It can be said that determining the actual consumption of materials on construction sites is just as important as the building resulting from the construction of the works.

Implementing a system that would allow any time establishing the real consumption of construction materials on construction sites would contribute effectively to the planning and follow-up of the execution works exclusively from the technical plan. At the same time it would be a useful tool for the project manager in fulfilling his duties of ensuring observance of the budget for the project without having to preliminary calculations.

## **2. The Current Situation**

At this moment determining the actual consumption of materials is a difficult task, which is not achieved only with the help of technical expertise at the end of the works. The consumption of materials presented in original estimate is not always similar to the one from the site, during the actual execution of the works.. The differences between the consumptions, the one estimated at the beginning of the construction works by the estimate and the real consumption of materials, is due to several causes.

One of the reasons for which at this time is difficult to determine the actual consumption of materials both during the course of construction and at the end of them is that at the EU level there is no reglementation of the uniform classification of construction materials.

Usually, the building materials classification is based on the codes but different construction companies are forced to create their own codes for each building material. Given that there would be a common database for assigning codes to construction materials things would be much simplified.

Another important aspect is the influence of consumption of building materials on the initial estimate and on the the company accountancy. One can consider that accounting software sites should be developed specifically for construction companies and, in this respect, pay particular attention to the material consumption.

Another issue that at this moment still has not find its resolution, at least for the constructions market in Romania, is the fact that most of the rules that are used to estimate the consumption of our country consist of materials that no longer exist, and the alpha numeric codes from the estimate norms according to the Indicators of rules estimate consumption are using building materials that also no longer exists.

Therefore, the conclusion that emerges is that the discrepancies between the technical consumption and the accounting consumption are due to the lack of correlation among the accounting softwares, the codes for construction materials brought into operation and the estimation rules which comprises the

consumption of materials. To this one can add the lack of agreement among the initial estimate, the work situations during the execution of works and the actual consumption of materials.

### **3. Database Methodology for Building Materials (C.MAT)**

All of the above improvements can be solved by implementing a system of codes that should cover all building materials, thereby creating a common database both in our country and in the European Union, hereinafter referred to as C. MAT.

Achieving such databases would lead to the establishment of quality criteria on the manufacture or the import of construction materials according to the codes set. It would also be a useful tool for easy identification of manufacturers and importers of building materials and equipment.

The system of codes covering all building materials would also have beneficial effects in design, because every designer/architect would know at any time what building materials are on the market, at what price, in what location, etc. As a result, the designer/architect is able to choose from a huge variety of materials and equipments those he considers appropriate for the project as well as for the budget. The materials thus identified will be used both in the actual design phase as well as during the execution phase of the works which will facilitate the control over the work performed by the beneficiary.

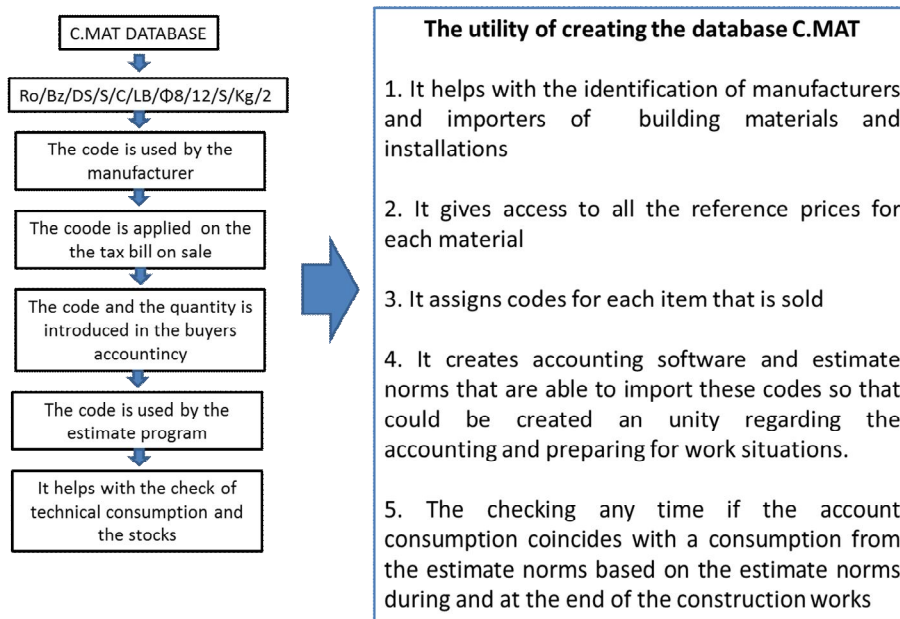
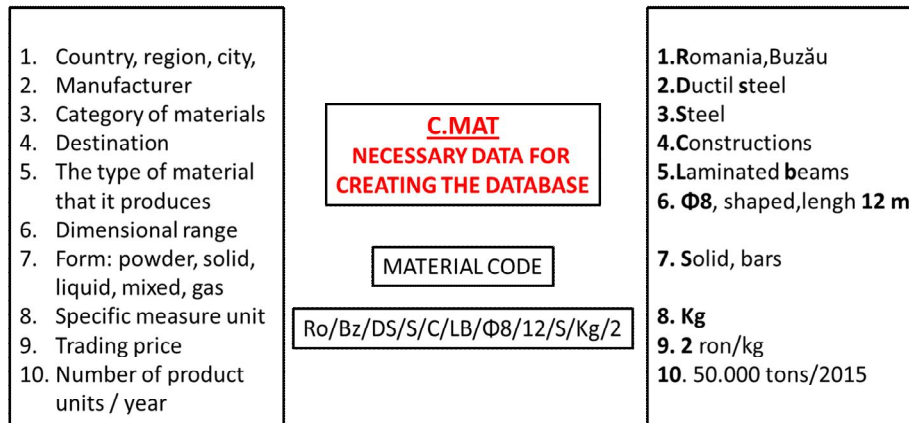
From an accounting perspective, we consider that the existence of such a database will be an useful aid to the issuance of invoices to purchase building materials (based on codes), by comparing the price and quality of building materials on the market. Moreover, it will be possible to reduce fraud from the state budget due to the existence of uniform codes that are found in the accounts of suppliers as well as companies which use these materials.

Given that today the construction companies are establishing their own consumptions based on rules no longer in force, the database will facilitate the adaptation of the standardized materials consumption from the estimate rules on the market. Also, based on the database will be able to develop cost standards for all contracting authorities in the European Union in order to carry out infrastructure works.

In the first part there were references on the lack of a real correlation between accounting software and the estimation rules. In this sense, we consider that the database for building materials will help to achieve uniform programs tailored to the specific of the construction and installation companies.

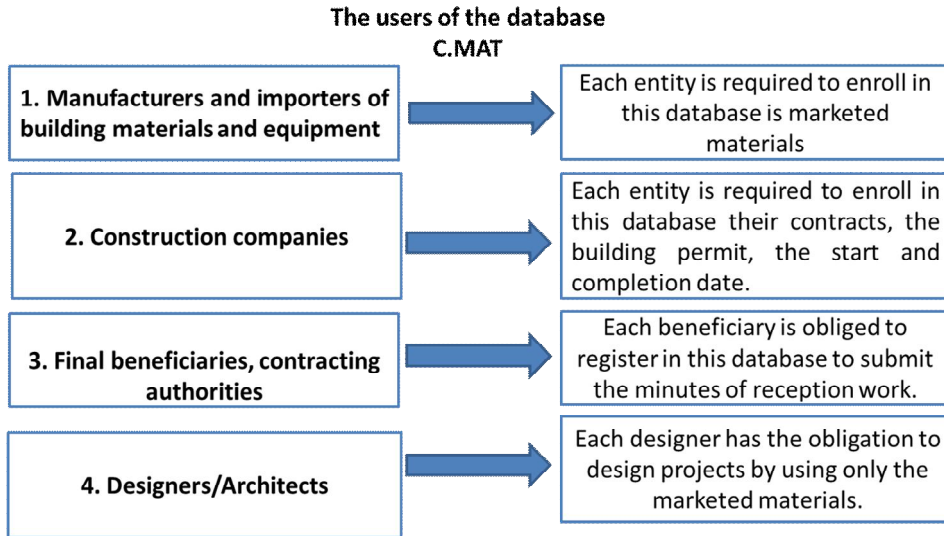
### **4. Operating of the Database for Building Materials (C.MAT)**

The database thus created enables the possibility of companies producing building materials to register all the selling products, using the same coding system. Example given:

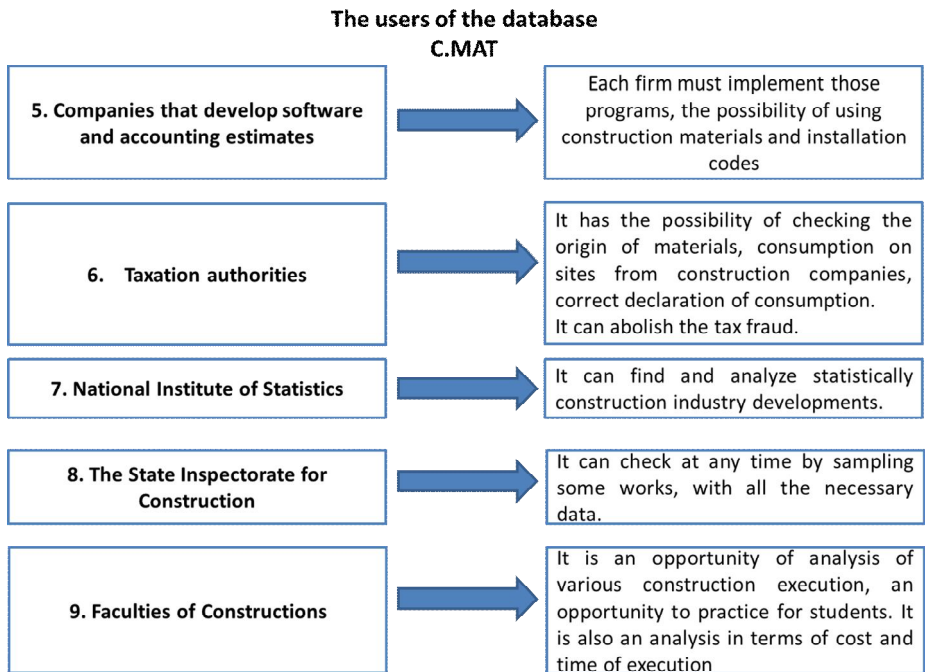


After the codification, the construction and installation companies have the opportunity and obligation to use the database, applying the respective unique codes to work with.

As a result, the relational sphere thus appears:



In terms of practical utility, the database construction materials (C.MAT) will be used as follows:



#### 4. Conclusions

After the 2008 economic crisis it is required that the construction market in the world and especially in the European Union to be covered in the smallest details starting from the design, the choice of materials of construction, prices, quality checks in execution. Those new rules will allow the authorities at all levels to be able to check from the economical point of view the accuracy with which the accounting data are registered at the construction companies.

Given that the construction industry is a complex area involving technical expertise, legislation, building material suppliers, designers, construction companies, local or central authorities etc., it is required that all the information be made available to all stakeholders on a common platform and C.Mat Methodology supports this idea thus enabling the prospect of sustainable growth of the industry.

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#### BAZA DE DATE C-MAT

(Rezumat)

Ramura construcțiilor nu se concretizează numai în edificarea unor clădiri mai mult sau mai puțin spectaculoase ci are și o componentă economică importantă care se regăsește în principal în consumul materialelor. Implementarea unui sistem care să permită oricând stabilirea consumului real de materiale de construcții pe șantier ar contribui efectiv atât la planificarea cât și la urmărirea lucrărilor de construcții.

Diferența între consumuri, consumul estimat de la începerea lucrării înscris în deviz și consumul real de materiale de construcții se datorează mai multor cauze.

Unul dintre motivele pentru care la acest moment este dificil să se determine consumul real de materiale atât în timpul execuției lucrărilor cât și la finalul acestora este faptul că la nivelul Uniunii Europene nu este reglementată o clasificare uniformă a materialelor de construcții. De regulă, materialele de construcții sunt clasificate pe baza anumitor coduri, dar de cele mai multe ori, companiile de construcții sunt nevoite să își creeze propriile coduri.

La acesta se adaugă influența consumului materialelor de construcții asupra devizului inițial și asupra contabilității companiei de construcții precum și faptul că, mai ales pe piața construcțiilor din România, normele de deviz fac referire la materiale care nu mai sunt actuale.

Drept urmare, concluzia care se desprinde este că discrepanța dintre consumul tehnic de materiale și consumul de materiale reflectat în contabilitate se datorează atât lipsei de corelare între programele de contabilitate, codurilor de materiale folosite și devizul în care este cuprins consumul de materiale.

Crearea unui baze comune pentru materialele de construcții ar conduce la stabilirea unor criterii de calitate pentru realizare efectivă a acestora și ar fi un instrument pentru identificarea ușoară a producătorilor și a importatorilor de materiale și echipamente. Acest sistem de coduri unitare ar fi benefic inclusiv pentru arhitecți, aceștia având posibilitatea de a alege dintr-o vastă cantitate de materiale, prețuri, calități, etc.

Din punct de vedere contabil ar putea exista un control strict asupra cantității și calității materialelor puse în operă concomitent cu reducerea evaziunii fiscale.

Baza de date C-MAT va crea posibilitatea companiilor producătoare de materiale de construcții să își înregistreze produsele folosind aceleași coduri. Codurile pot avea în vedere țara producătoare, localitatea, destinația, cantitatea, unitatea de măsură, producătorul, prețul, etc.

Ar fi astfel creată o platformă comună care ar fi utilizată nu mai de proiectanți, executanți și beneficiari ci și de instituții cu atribuții de control și îndrumare. Baza de date C.MAT are ca scop nu numai control asupra calității materialelor de construcții ci în final și asupra calității execuției lucrărilor.

