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1. Introduction

In the middle of the 1960 the public authorities of the federal state of Nordrhein Westfalen in West Germany began to use data processing to produce documents, i. e. building descriptions for contractors. They started with existing sample building descriptions and soon realized, that these documents were not suitable for data processing.

A special committee the Joint Committee on Electronics in the Buildings Industry (Gemeinsamer Ausschuß Elektronik im Bauwesen, GAEB) was founded in 1966 to develop building descriptions, suitable for electronic data processing. This committee developed the StLB [1] (Standard Library of Descriptions of Building Works) as a common Language in the building industry. Similar developments could be observed in other German speaking countries such as Austria and Switzerland but also in Great Britain [2] .

2. The Structure of the StLB

In developing the StLB, the GAEB realized, that a great variety of building professions, methods, dimensions, materials etc. had to be considered. Therefore the complete StLB was grouped into sections (Leistungsbereiche) according to the different branches of the building industry such as masonry work, concrete and reinforced concrets work, painting work, plumbing works etc. The standard descriptions of the building works, of one branch are listed in one book. The first book (earthwork) appeared in 1970. Til now, 70 books have been published, some of them in a second and third edition.

Inside each book, the standard descriptions for each branch of the building industry are coded in the same way, using text fragments. By forming sequences of code-numbers the user links text fragments together and thus produces complete descriptions of building works.

The following example illustrates this method of producing descriptions.

Fig. 1 shows on page of the standard text book for concrete and reinforced concrete work.

T1	T2	T3	T4	T5	Units	Long Text	K.No.	Short Text
640						9 Reinforcement		
						Reinforcing steel rods		Reinforcing steel rods
	1					I G		I G
	2					I R		I R
	3					III U		III U
	4					III K		III K
	9					.....	21	.....
						<i>Note:</i> Diameters over 28 and up to 40 mm only with reinforcing steel rods I R.		
	1					Diameters up to 10 mm		D up to 10mm
	2					—— over 10 and up to 20 mm		D 10—20mm
	3					—— over 20 and up to 28 mm		D 20—28mm
	4					—— over 28 and up to 40 mm		D 28—40mm
	5					.....	22	D
	6					all diameters		all diam.
	1					Lengths up to 14.00 m		L up to 14m
	2					Over-lengths over 14.00 m		L over 14m
	3					All lengths		all lengths
	0							
	1					as cubic reinforcement,		
						for building parts in site concrete		f.bp.
						for prefabricated reinforced concrete parts		f.pref.
						for diaphragm walls		f.diaph.
						as connecting reinforcement		f.con.
						for unreinforced large bored piles		f.con.
						as connecting reinforcement		f.con.
						for unreinforced large bored piles		f.con.
						.....	41	.....
	1					deliver, cut, bend and position		del.b.pos.
	2					deliver, cut, bend, and unload		del.b.unl.
	3					——, cut and bend		deliver and bend
	4					—— and unload		deliver and unload
	5					unload, cut, bend and position		unf.b.pos.
	6					cut, bend and position		bend, pos.
	7					position		position
	8					unload and position		unload and pos.
	9					.....	42	.....
					01 tonnes			
					02 kg			

Fig. 1 StLB page for Concrete and reinforced concrete works

The sequence of code number T1-T5

<u>640</u>	<u>32</u>	<u>11</u>	<u>11</u>	<u>01</u>
T1	T2	T3	T4	T5

corresponds to the standard description.

"Reinforcing steel rods III U.
Diameters over 10 and up to 20 mm.
Lengths up to 14.00 m as cubic reinforcement
for building parts in site concrete.
Deliver cut bend and position".

This method is also used by Monk & Dunston [2] , who in 1966 published their Library of standard descriptions.

There exist always descriptions which cannot be found inside the StLB books. Therefore free descriptions can be used in addition to the standard descriptions. The user should design the free descriptions by text fragments, using the StLB-method.

3. Computer use of the StLB

Each StLB-book is available as printed paper or on magnetic tape or on floppy disk. In the past, a great variety of computer programs have been developed to process the StLB books. The most important application programs are those, which produce standard building descriptions, similar to the bill of quantities

In the call for tenders the standard building descriptions are transmitted to the contractors as printed lists. Although these lists (Fig. 2) have been standardized by the GAEB committee, an exchange of standard building descriptions on magnetic medium has only be done for special projects.

LIST OF SPECIFICATIONS

OZ (ITEM)	UN/K	UNIT PRICE	TOTAL AMOUNT
	CATEGORY LOT (S3)		
	<u>01 CONCRETE AND REINFORCED CONCRETE</u>		
	SUB-LOT (4)		
	<u>01 SITE CONCRETE</u>		
133	10 M3	.....	.....
	<u>STL.No.73 013/012 00 10 11 04</u>		
	NORMAL CONCRETE, NON-REINFORCED, FOR FILLING IN BN 50 D 15-20 CM		
	<u>SITE CONCRETE FOR FILLING IN BELOW GROUND LEVEL</u>		
	NORMAL CONCRETE CONCRETE (NON-REINFORCED) BN 50 THICKNESS MORE THAN 15 TO 20 CM		
	BASIC ITEM ZZ	19.0	

Fig. 2 Standard List of a building description according to GAEB

The contractor returns the priced tender and the customer or the architect compares the tenders of the different contractors. Special computer programs are available to analyse the tenders and produce price-patterns.

On the basis of the price-pattern the contractor is selected. The standard building description is the basis of the contract between the contractor and the customer. It is often modified and amended during the construction phase.

The standardized building description also represents the document for the invoices of the contractor according to the progressive construction of the building. For the calculation of the quantities there exist standards according to REB [3] (Regelungen für die Elektronische Bauabrechnung). The calculation of the quantities is done by both parties, the customer and the contractor. An exchange of input data according to REB on magnetic medium between the contractor and the customer is widely used.

4. Trends

Although, the documents which are exchanged between the customer and the contractor are standardized to a great extent by the StLB and by REB, the exchange of data on magnetic medium is done only on the basis of REB for invoicing purposes. The standardisation of the representation of standard building descriptions according to StLB on magnetic medium is currently under way and on the basis of this standardisation, an exchange of building documents between customers and contractor on magnetic media can be expected in the future.

A second trend is to transmit quantities calculated by CAD-Systems for building design to programs for the production of standardized building descriptions. Since architects in Germany are just beginning to use CAD-programs as tools to produce drawings, this possibility will certainly not widely used in the near future.

5. References

- [1] GAEB: StLB, The Standard Library of Descriptions of Building Works, Principles Structure, Application, Beuth-Verlag Berlin 1979.
- [2] Monk, Dunstone: Standard Library of Descriptions of Building Works, Oldacres & Co. Ltd., London, 1966.
- [3] REB: Richtlinien für die elektronische Bauabrechnung.
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