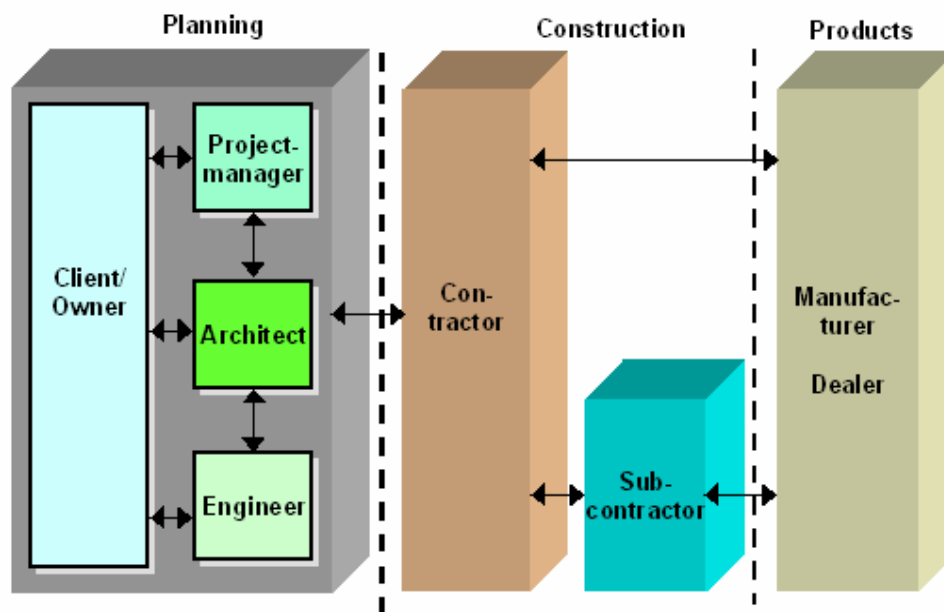




**Joint Committee on
Information Technology
in the Construction Industry**

GAEB Data Exchange XML (GAEB DA XML)

**Organization of
the Information Exchange
regarding the Execution of
Construction Work**



Version 3.0

Issued July 2004

Established by the Joint Committee on Information Technology in the Construction Industry
(GAEB)

Preface

The Joint Committee on Information Technology in the Construction Industry (GAEB) promotes the use of data processing in construction. Public and private clients, architects, engineers, the construction business and software development companies are all represented by their own federations or professional associations in the GAEB.

The GAEB establishes the preconditions necessary for the use of integrated data processing in the execution of construction work.

The GAEB Data Exchange has evolved from the "line orientation" (GAEB DA 1985, 1990) into the "key word orientation" method (GAEB DA 2000). In 2002 GAEB DA 2000 was written with XML.

GAEB DA 2000 XML is the only set of data exchange regulations which is continuously developed and updated. No other set of regulations is supported by GAEB.

The eXtensible Markup Language (XML) is an internationally recognized program language for the transfer of complex structures.

XML files can be electronically encoded and authorized.

This new edition, the "GAEB DA XML", includes the results of the practical application of the earlier regulations along with contributions and suggestions from users.

In so doing the GAEB makes a major contribution to promoting standardization in the construction industry, both nationally and internationally.

The GAEB recommends that this national standard serve as a specification for the creation of new program systems and that existing program systems be adapted to this standard as they are updated.

The regulations will continue to be updated according to the needs of all involved in the construction industry. The GAEB central office is happy to receive any suggestions for alterations and additions.

The GAEB central office is a department in the Federal Ministry for Construction and the Interior, a division of the Federal Ministry for Traffic, Construction and Housing (now: Federal Ministry for Traffic, Construction and City Development).

Our thanks to all the specialists involved in the further development of this system of rules for their admirable work and generous support.

Joint Committee on Information Technology
in the Construction Industry (GAEB)

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1 Introduction – Information on Version 3.0

This document forms the basis for the generation of building trade programs for the processing of Bills of Quantities. The visualization and electronic interface exchange between all project partners is an integral part of this process. Building procedures beyond this phase are also supported.

The bid call, award and billing (BAB) process for construction work requires that a common set of rules be available to all the parties involved.

It is essential that all data and information that is required to be exchanged between project partners during planning and implementation be categorized and structured. Such a course of action has the following advantages:

- Information is made available
- Information input and retrieval times are minimized
- Workflow processes are optimized
- Reduction in entry errors as data re-input is rendered unnecessary

Compatibility syntax of the previous regulations from the 1985, 1990 and 2000 1.2 versions is not available.

Provided that the contract parties comply with these regulations, all partners will be able to exchange any mutual information precisely and smoothly, thus reducing the expenditure of time and money.

The standards that have been developed will be updated as necessary by the "AVA (BAB) Program Systems" team in the main working group of the GAEB.

The components of the GAEB DA XML featured in this version, which are essential for the electronic awarding, are:

- **Structure of the Bill of Quantities,**
- **Configuration of the Bill of Quantities,**
- **Exchange Processes in the Construction Industry and Professional Regulations,**
- **Exchange Processes in the Construction Industry with XML and**
- **Appendix.**

With these components the following data exchange phases -

- D81 Work Specification
- D82 Estimate
- D83 Request for Bid
- D84 Bid
- D85 Secondary Bid
- D86 Awarding of Contract and
- D88 Amendment

- can be utilized.

Range of Services:

- Structure of the Bill of Quantities,
- GAEB Data Exchange XML (GAEB DA XML),
- Outline File (.xsd) and
- Technical Documentation of Phases D81 – D88.

You can find the latest information on the development and advancement of GAEB DA XML at www.gaeb.de and www.gaeb-da-xml.de.

2 Structure of the Bill of Quantities

2.1 General Principles and requirements

2.1.1 General Principles

VOB	Construction Contract Procedures
VOL	Award Rules for Work Other Than Building and Construction
StLB	Master Specifications for Construction
STLB-Bau	Master Specifications for Construction - Dynamic Construction Data
StLB (BiB)	Master Specifications for Construction - Alterations
STLB-BauZ	Master Specifications for Construction - Term Contract Work (term contract work in the bidding up and bidding down procedure)
STLK	Master Catalog for Road and Bridge Building / Civil Engineering Hydraulics
REB	Guidelines for Construction Electronic Billing
GAEB-VB	Procedural Specifications for Construction Electronic Billing from the Joint Committee on Information Technology in the Construction Industry (GAEB)

2.1.2 Requirements for the Description of Construction Work with a Bill of Quantities

The bill of quantities must describe the construction work clearly and comprehensively in order that all prospective bidders understand it in the same way and can calculate their prices accurately without extensive preparatory work.

The item total (IT) is generally calculated from the Unit Price (UP) of individual work elements. The Total Sum results from the addition of the Total Costs.

The price of an item is the product of bulk price and unit price. This is represented as the item total (IT). The sum of all the item totals is the Bill of Quantities Sum. It corresponds with the net bid/contract value and, together with the valid sales tax, forms the gross bid/contract value.

If the Bill of Quantities is broken down into its component parts, then the sum of those components should be categorized. The sum of all BoQ components yields the total cost of the Bill of Quantities.

The sales tax and the gross sum of the total amount plus sales tax must additionally be classified. This also applies to the individual award elements of bills of quantities which are broken down into lots.

If a bill of quantity is divided into award elements, the sales tax should be treated in the same way.

2.2 Bidding Procedure as per VOB/A § 6

For purposes of pricing, a distinction is made between:

2.2.1 Bidding Procedure:

In the bidding procedure (VOB/A § 6 No. 1), the client specifies the type and scope of work. Following an analysis and evaluation, the client awards the contract to the bidder submitting the most cost-effective bid.

2.2.2 Bidding Up and Bidding Down Procedure

In the bidding up and bidding down procedure (VOB/A § 6 No. 2), the prices that the client specified for the type and scope of work are submitted to bidders so that they can either bid up or bid down. This procedure should be adopted only in exceptional cases and only for regularly scheduled maintenance work whose scope must be kept to a minimum.

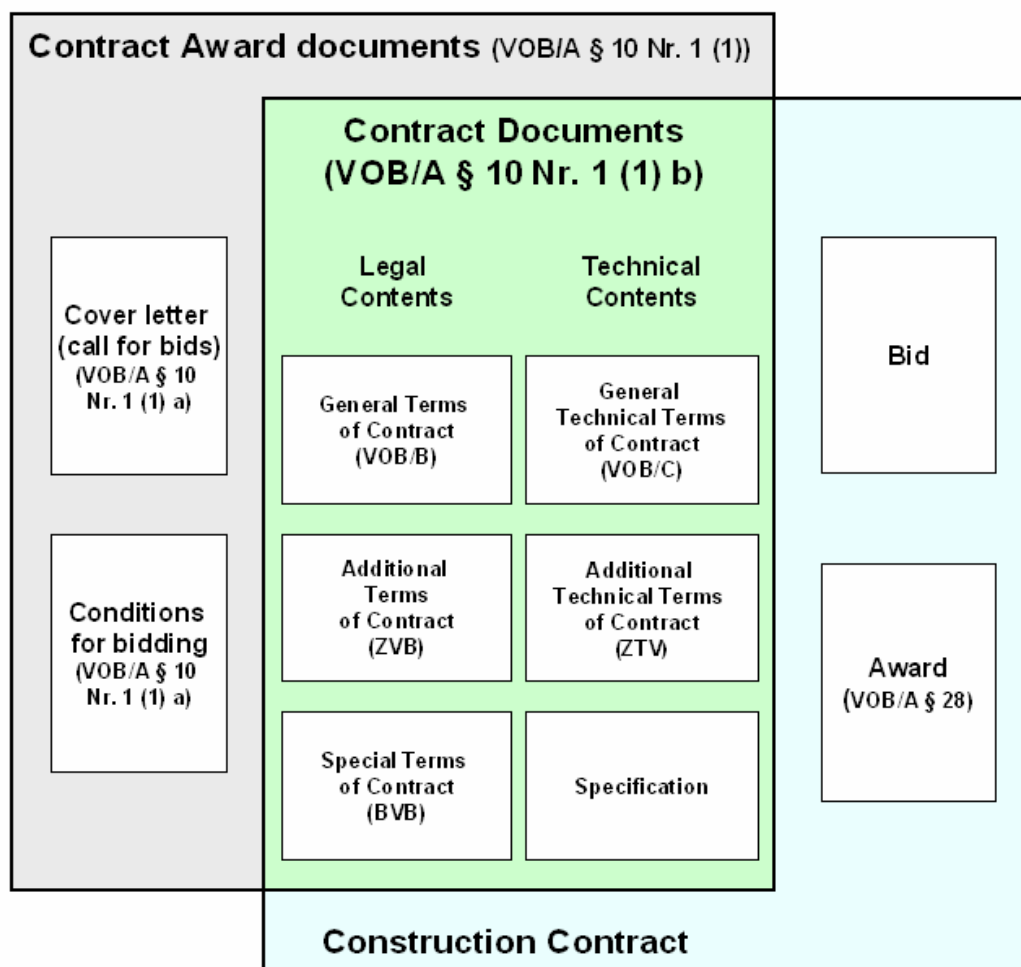
Following an analysis and evaluation, the client awards the contract to the bidder submitting the most cost-effective bid.

2.3 Contract Award Procedure

A distinction is made among the following contract award procedures (diagram excerpted from VOB/A):

Contract Award Procedures				
Below EU threshold value		Above EU threshold value		Form
Type	Request for participation	Type	Request for participation	
Open call for bids	Unlimited number of bidders	Open procedure	Unlimited number of competitors/ bidders	Prescribed (formal) procedure
Selective call for bids after open competition	Unlimited number of competitors, limited number of bidders	Closed procedure	Unlimited number of competitors, limited number of bidders	
Selective call for bids without open competition	Limited number of bidders			
		Negotiation procedure with announcement of contract award	Unlimited number of competitors, limited number of bidders	
		Negotiation procedure without announcement of contract award	Limited number of bidders	
Negotiated contract	Limited number of bidders			No prescribed (formal) procedure

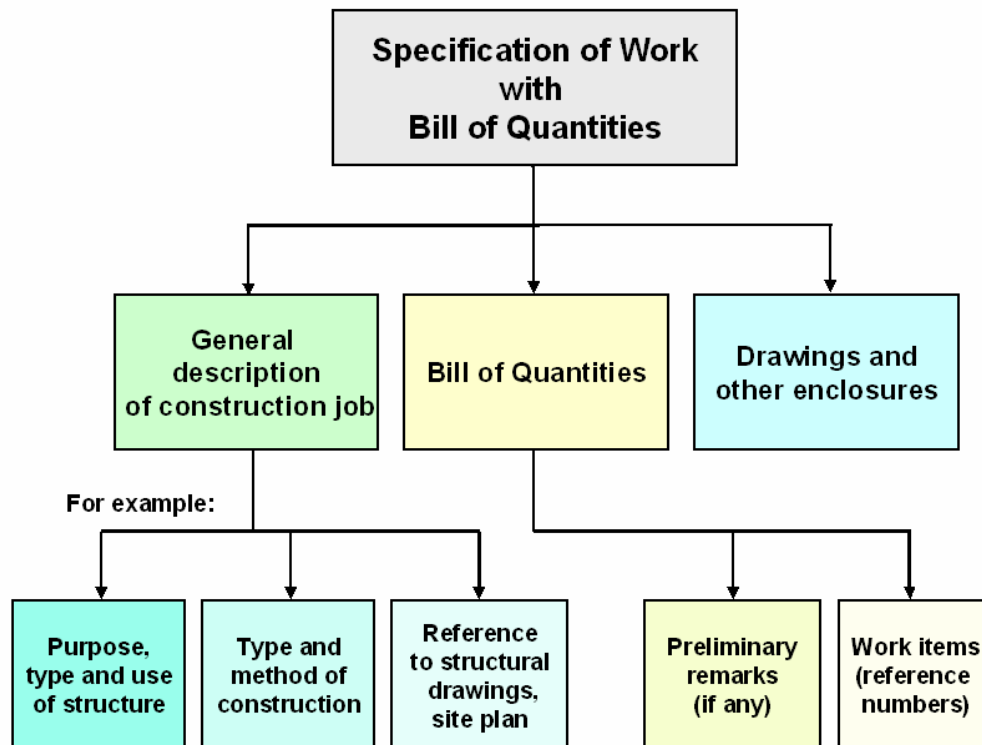
2.4 Contract Award Documents/Contract Documents/Construction Contract



2.5 Description of Construction Work

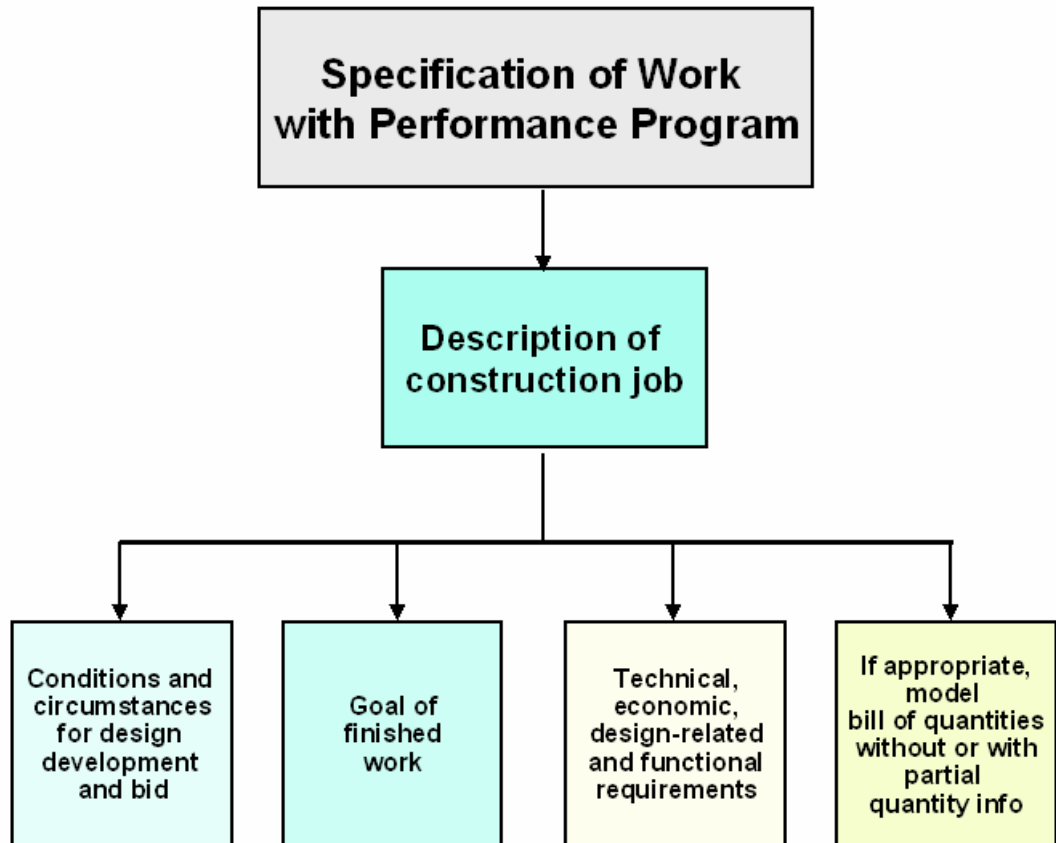
2.5.1 Specification of Work with Bill of Quantities

As a rule, the construction work must be described in a general outline of the construction job (technical specifications) and a bill of quantities broken down into work items (VOB/A § 9).



2.5.2 Specification of Work with Performance Program

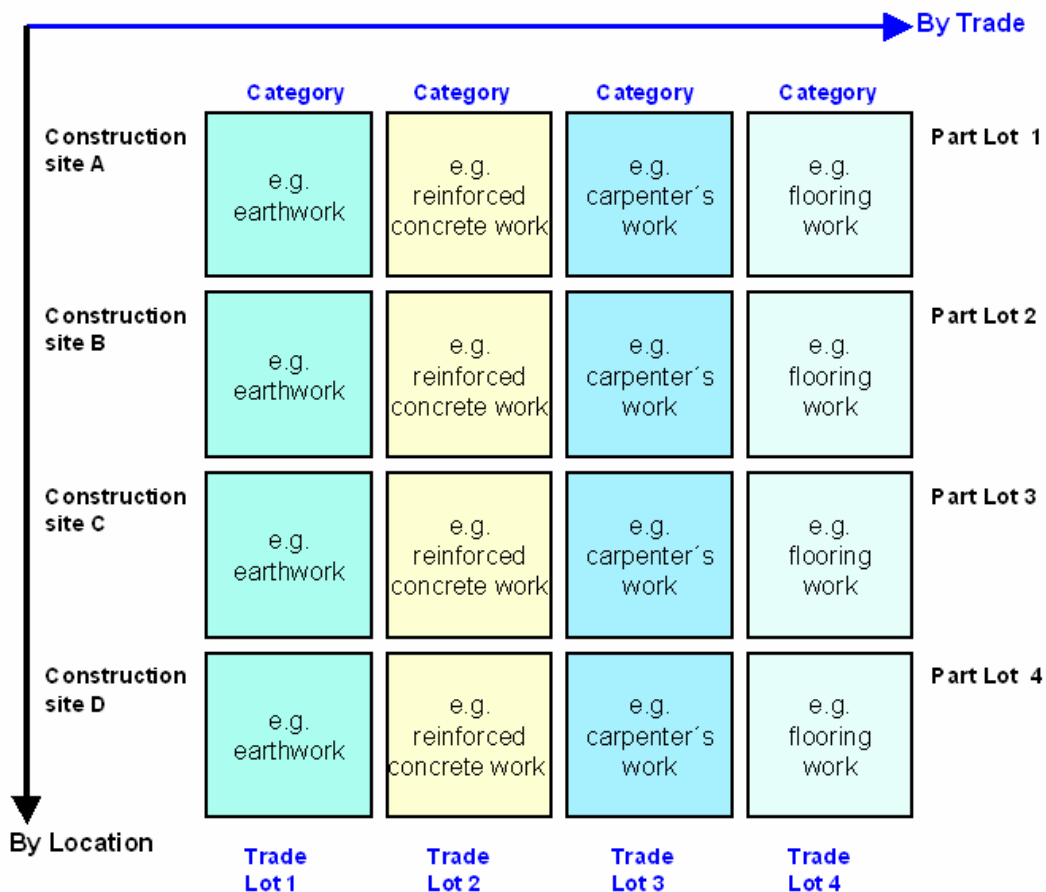
The Specification of Work with Performance Program can be used if, after considering all the circumstances, it is deemed appropriate to include not only the performance of work but also its design as part of the competition in order to determine the best solution for the construction job in terms of engineering, economy, design and function (VOB/A § 9).



2.6 Lot

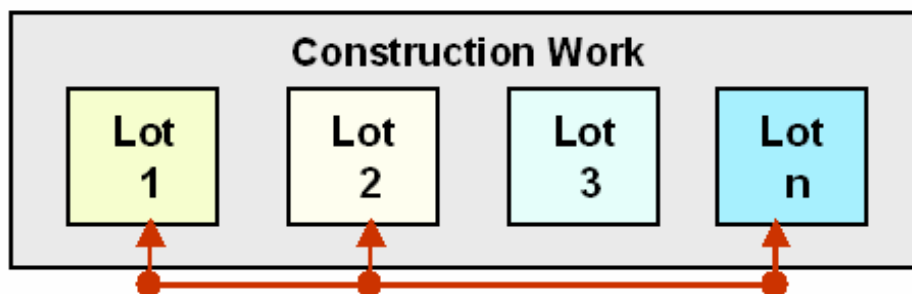
A lot is the portion of the requisite total construction work contained in one contract. Large-scale construction work should preferably be broken down into lots and contracts awarded on a lot-by-lot basis:

- "Part lots" by location
- "Trade lots" by trade



Bidders can specify the extent to which the price will be discounted if they are awarded multiple lots or the total contract.

All Lots Combined = Construction Work (Total Contract)



When the contract is awarded, the lots can be combined in lot groups

2.7 Bill of Quantities (BoQ)

2.7.1 Bill of Quantities Types

The bill of quantities can be generated in different text versions:

- Detailed Bill of Quantities (Original)

The detailed bill of quantities must provide a clear and exhaustive description of the work items.

- Outline Bill of Quantities

The outline bill of quantities is used only for referring to work items so that, for example, it is possible to differentiate among items for billing purposes. Only the detailed bill of quantities is valid for the execution of construction work.

2.7.2 Bill of Quantities Breakdown

2.7.2.1 Reference number (Ref. No.)

The reference number is the exact identifier for each individual work item in the bill of quantities. Reference numbers must be unique and in ascending order. The particular breakdown selected for the bill of quantities determines how the reference numbers will be formed.

Reference numbers consist of up to 14 digits and comprise:

- Digits referring to the hierarchical level (if applicable),
- Digits referring to the item number,
- Item index digit (if applicable).

The range of values for all the digits in the reference number consists of the following characters:

- space (U+0020); *U+is the designated Unicode notation for character*
- digits ([0-9])
- capital letters ([A-Z])
- underlined characters (U+005F)
- lower case letters ([a-z])

The sequence illustrated here is also the sorting sequence for the ascending order of the reference numbers in the BoQ.

Spaces (U+0020) and/or underlined characters (U+005F) may only be employed, at all hierarchical levels, together with other permitted characters.

The lot is a component of the reference number and, when applicable, occupies the highest hierarchical level in the selected breakdown. The designation "lot" is mandatory. A total of 5 hierarchical levels (including the lot) are permitted.

2.7.2.2 Hierarchical Levels

For large-scale construction work, the use of hierarchical levels makes it possible to arrange the bill of quantities according to different criteria. Bills of quantities can be arranged in up to five hierarchical levels. The work items are positioned on the lowest level of the hierarchy. The names of the hierarchical levels are defined once for the entire bill of quantities.

If a bill of quantities contains no hierarchical levels, it simply comprises work items.

2.7.2.3 BoQ Category

A hierarchical level can be made up of any number of BoQ categories. For example, each lot, each main section, each section, each subsection and each title can be a BoQ category.

Each BoQ category has its own numeric code that forms the subcode of the reference number in accordance with the hierarchical level.

Each BoQ category has its own designation (title) and yields a separate total.

Should a bill of quantities not contain hierarchical levels, the grand total is derived directly from the sum of all the totals of the work items.

2.7.3 Generation of the Reference Number

2.7.3.1 Example Based on One Lot and Four Additional Hierarchical Levels

Hierarchical Levels Titles of BoQ Categories		BoQ Breakdown										Work Item Numbers				Index
		Lot	Main-section		Section		Sub-section		Title							
BoQ Contents	Building 1	L														
	Carcass		0	1												
	Basement				0	1										
	Masonry						0	1								
	External Walls								0	1						
	Work Item											0	0	0	1	
	Index														0	
		1	0	1	0	1	0	1	0	1	0	0	0	0	1	0
Reference Number (Ref. No.)																

Note:

- The titles of the BoQ categories and the names of the hierarchical levels (except for Lot) were chosen by way of example.

- This example shows the first work item of the first lot in the bill of quantities.

2.7.3.2 Example with One Hierarchical Level

		BoQ Breakdown									
<div>Hierarchical Level Titles of BoQ Categories</div>		Section		Work Item Numbers				Index			
BoQ Contents	Masonry	0	1								
	Work Item			0	0	0	1				
	Index								0		
		0	1	0	0	0	1	0			
Reference Number (Ref. No.)											

Note:

- The title of the BoQ category and the name of the hierarchical level were chosen by way of example.
- This example shows the first work item of the first lot in the bill of quantities.

2.7.3.3 Example without Hierarchical Levels

		Work Item Numbers				Index
BoQ Contents	Work Item	0 0 0 1				
	Index					0
		0 0 0 1				0
		Reference Number (Ref. No.)				

Note:

- This example does not include the title of a BoQ category or the name of a hierarchical level.
- It shows the first work item of the first lot in the bill of quantities under a 4-digit item counter with index, which can be maximum 14 digits long.

2.7.3.4 Unassigned Hierarchical Levels

1 A BoQ must conform to the breakdown selected. Lower hierarchical levels within a BoQ breakdown can remain unassigned.

The Ref. Nos. must be so clearly represented in the printout that when hierarchical levels are omitted, the Ref. No. remains unmistakably legible (for example, omitted hierarchical levels can be represented by the character “underscore”).

Example:

The following names have been selected for a five-level breakdown:

Lot, Main Section, Section, Subsection, Title.

Note: The name "Lot" is permanently defined and cannot be changed.

The item description can, **for example**, be assigned as follows:

Lot	Main Section	Section	Subsection	Title	Item
1	1	1	1	1	1 - n
1	1	1	2	unassigned	1 - n
1	1	2	unassigned	unassigned	1 - n
1	2	unassigned	unassigned	unassigned	1 - n
2	unassigned	unassigned	unassigned	unassigned	1 - n

Examples of abbreviated reference numbers in the printout:

1.2._._.4356.A Abbreviated Ref. No. with " _ " characters between category delimiters

1.2...4356.A Abbreviated Ref. No. without characters between category delimiters

1.2;4356.A Abbreviated Ref. No. with " ; " as item delimiter

1.2*4356.A Abbreviated Ref. No. with " * " as item delimiter

2.7.3.5 Example of Totalling, Abbreviated Ref. Nos. and Unassigned Hierarchical Levels

Bill of quantities with two hierarchical levels (Section and Subsection).

In Section 2, the "Subsection" hierarchical level is unassigned.

Structure		Page:	41
Bill of Quantities		Date:	16.05.2003
		DP No.:	AG 13
Ref. No.	Qty.	Unit Price	Total
		in EUR	in EUR
1	Carcass work		
1.1	Earthwork		
1.1.10	20 St	50,00	1.000,00
	Item description E		
1.1.20	150 m	20,00	3.000,00
	Item description F		
	Total 1.1		-----
	Earthwork		<u>4.000,00</u>
1.2	Masonry		
1.2.10	75 m3	80,00	6.000,00
	Item description N		
1.2.20	260 m2	50,00	13.000,00
	Item description M		
	Total 1.2		-----
	Masonry work		<u>19.000,00</u>
	Total 1		-----
	Carcass work		<u>23.000,00</u>
2	Interior work		
2._.10	500 m	18,00	9.000,00
	Item description P		
2._.20	50 h	40,00	2.000,00
	Item description U		
2._.30	40 m2	150,00	6.000,00
	Item description A		
	Total 2		-----
	Interior work		<u>17.000,00</u>
	BoQ Total		<u>40.000,00</u>

Note: - Because items are assigned directly to Section 2, this section must not contain subsections.
 - The unassigned hierarchical level in Section 2 is represented by the character "underscore".
 - The creation of totals across BoQ categories is also shown in summaries.

2.7.4 Description Formats for Work Items

The bill of quantities can contain work item descriptions that use the following description formats:

- Work item as standard description
- Work item as summary and subdescription
- Work item with reference to performance description (see sample BoQ)
- Work item as reference and repeat description (see sample BoQ).

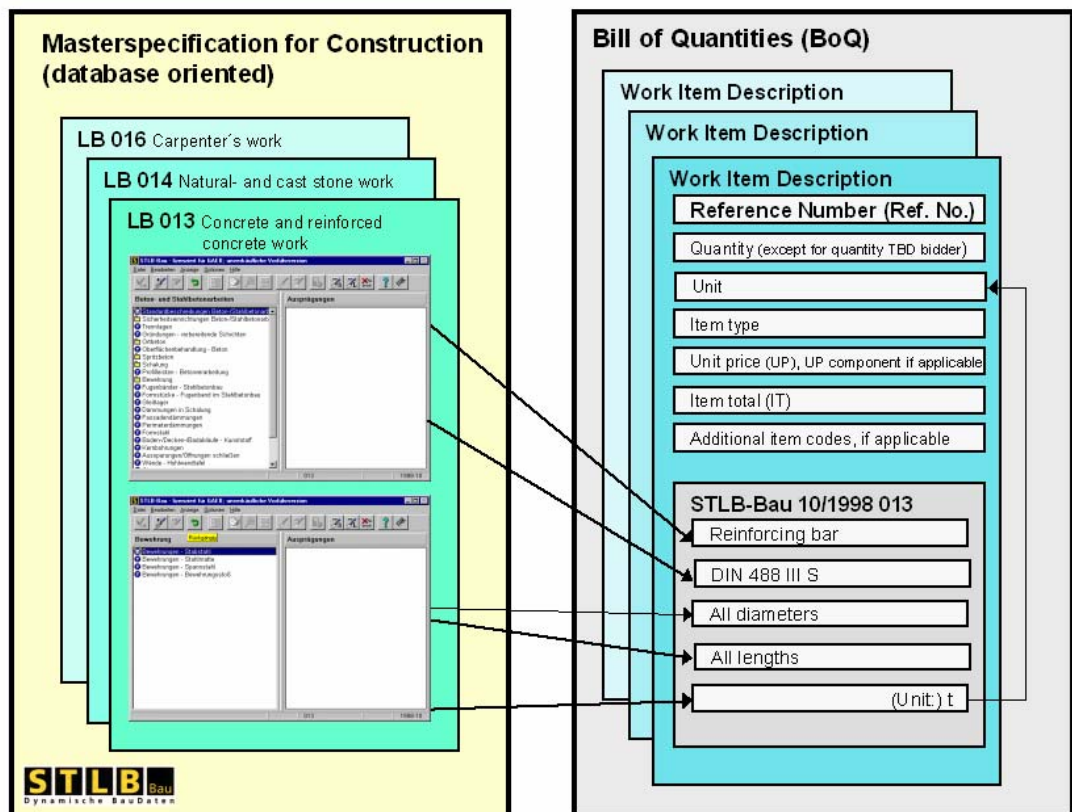
2.7.4.1 Work Item as Standard Description

This work item description generally comprises the

- Reference number
- Quantity (except for "quantity TBD by bidder")
- Unit (unit of measurement for the quantity)
- Complete description with standardized or non-standardized text
- Catalog or key number (in the case of standardized text)
- Item type
- Text supplements, if applicable
- Additional item codes, if applicable
- Unit price (UP)*, if applicable
- Item total (IT), if applicable
- UP components, if applicable

* The unit price is specified for structural maintenance work (term contract work) as per VOB/A § 6 No. 2.

Work Item from StLB as Standard Description



2.7.4.2 Work Item as Summary Description and Subdescription

In the case of descriptions that are especially detailed, the work item can be composed of a summary description and one or more subdescriptions.

The reference number and all other features of the standard description are assigned only to the summary description.

The associated subdescriptions are identified by two-digit, contiguous, ascending subdescription numbers starting with 01.

If necessary, subdescriptions can contain unit price information. The contractor's authorization is required to facilitate this.

The Summary Description begins with the following identifier:

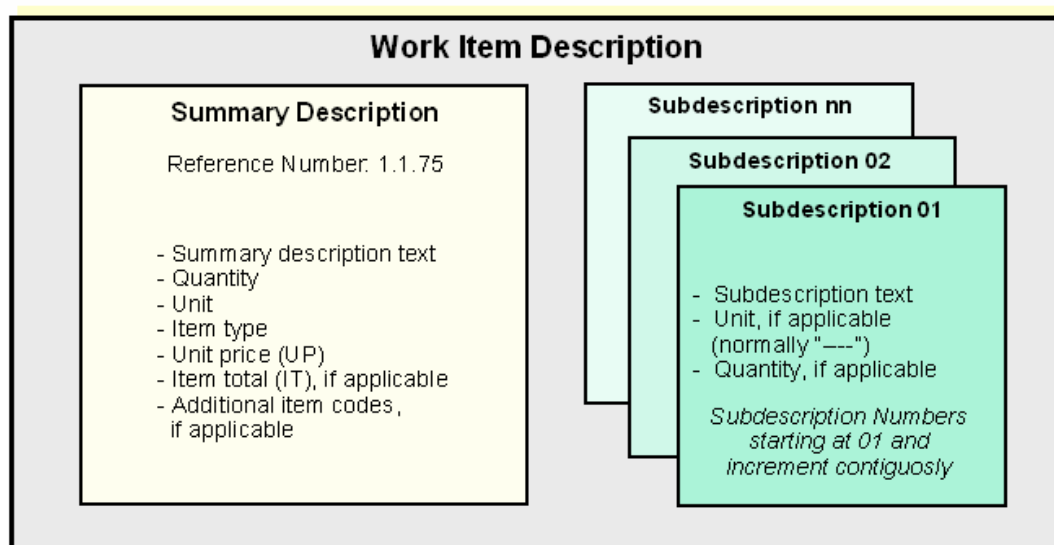
Summary Description

Each subdescription begins:

Subdescription number

Subdescription (e.g. 01)

Note: The characterizations **Summary Description** and **Subdescription** are generated by the application program.



2.7.4.3 Work Item with Reference to Performance Description

Unchanging, detailed descriptions of a series of work items can be combined under a single number in a performance description. These descriptions must precede the work items provided with a reference number.

The items then contain only the **text that supplements** the complete description of the work item. The items are linked to the performance description by the performance description number.

The performance description begins with the following identifier:

Performance description

The performance description comprises the following:

– Performance description number that is not a component of the Ref. No. and must be contained only once in the BoQ

- Freely selected designation for the work item
- Elements of the performance description (unchanging text sections).

An item that refers to a performance description starts with the following identifier:

Execution as per Performance Description

This is then followed by the text supplementing the item description.

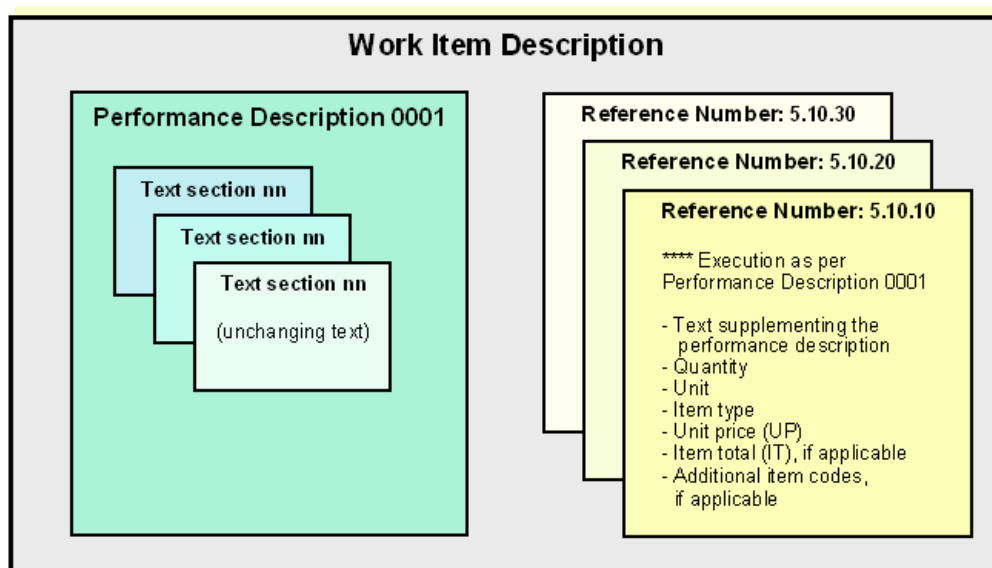
Note: The identifiers

"Performance Description" and

"Execution as per Performance Description"

are generated by the application program.

Work Item with Reference to Performance Description



2.7.4.4 Work Item as Reference Description and Repeat Description

Reference and repeat descriptions make it possible to describe work items in an abbreviated form.

The **reference description** starts with the following identifier:

Reference description

and contains the complete text of the work item description.

The **repeat description** starts with the following identifier:

Ref. No. of reference description

Repeat description of, except

and contains the following:

- Unique reference to the reference description based on the identifier
- Textual changes in this work item description as compared to the reference description and, if applicable, all the lines for bidder text supplements.

The quantity unit must be the same as in the reference description.

The reference description must precede the repeat description.

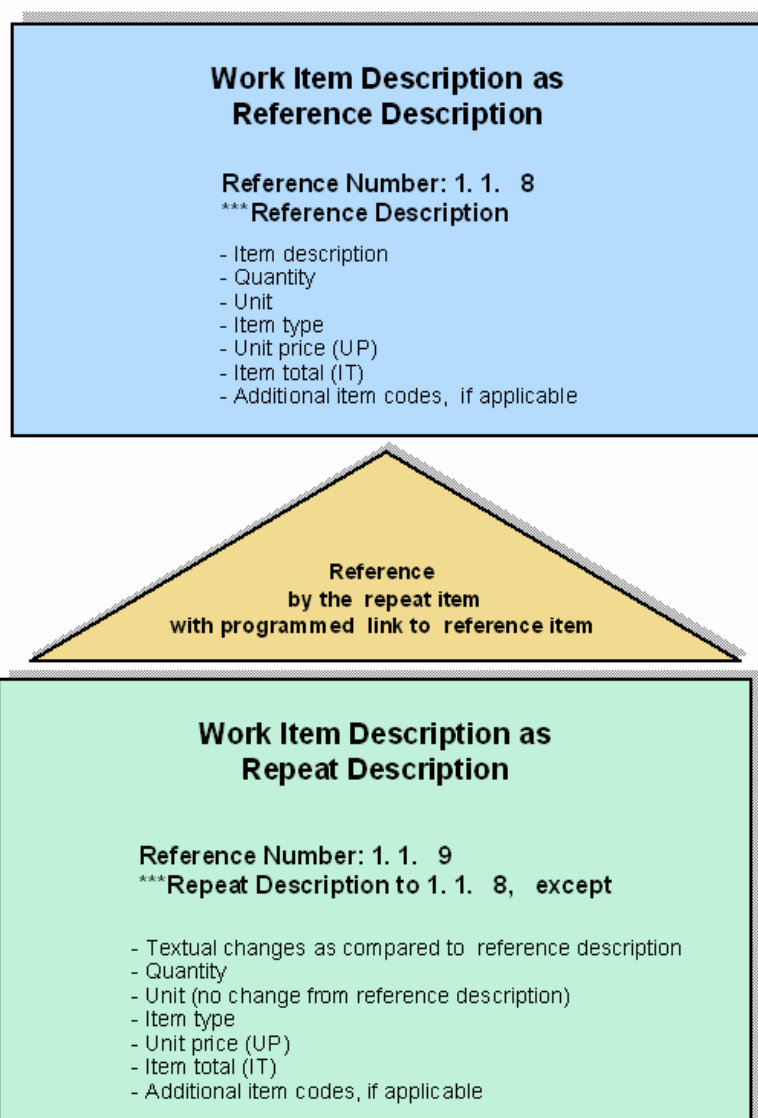
A repeat description may not refer to another repeat description.

Note: The identifiers "**Reference Description**" and "**Repeat Description of except**" are generated by the application program.

The repeat description for the following two options is presented below:

- as standard description from the StLB
- as summary description and subdescription from the StLB

Work Item as Reference Description and Repeat Description



Reference Description and Repeat Description as Standard Description from Master Specifications for Construction (StLB)

Presentation of Repeat Description for a Standard Description

- Identifier:

Ref. No. Of reference description

Repeat Description of, except

- StL No.

for the complete text of the standard work item; the numbers of text sections containing divergent text and/or text supplements modified by the author are highlighted, for example by means of parentheses, bold type, etc.

(For STL-Bau, this is replaced by the catalog name of the text source)

and

the text section that diverges from the reference description with the requisite bidder information, if applicable, and/or

text supplements modified by the author, also if applicable.

(For STL-Bau, the identifiers must correspond only to the divergent text section and not to the complete text of the item.)

If the StL No. is the same, the divergence can be incorporated in a text supplement. When non-standardized texts are used, the repeat description must be presented accordingly.

Note: The identifier -

Repeat Description for....., except

is generated by the application program.

Reference Description and Repeat Description as Summary Description and Subdescription from Master Specifications for Construction (StLB)

Presentation of Repeat Description for a Summary Description

Identifier:

Ref. No. of ref. description

Repeat Description of except

– StL No.

for the complete text of the standard work item; the numbers of text sections containing divergent text and/or

text supplements modified by the author are highlighted, for example by means of parentheses, boldface, etc.

(For STL-Bau, this is replaced by the catalog name of the text source)

and

the text section that diverges from the reference description with the requisite bidder information, if applicable, and/or

text supplements modified by the author, if applicable.

If the StL No. is the same, the divergence can be incorporated in a text supplement and/or one or more subdescriptions. When non-standardized texts are used, the summary description of the repeat description must be presented accordingly.

Note: The Identifier:

Repeat Description of....., except

is generated by the application program.

Presentation of Repeat Description for a Subdescription with Divergent Text

The word "**except**" refers to the divergent text section,

- the number of the subdescription in which changes were made as compared to the reference description
 - StL No. for the complete text of the standard work item; the numbers of text sections containing divergent text and/or text supplements modified by the author are highlighted, for example by means of parentheses, boldface, etc.
- (For STLB-Bau, this is replaced by the catalog name of the text source)

and

the text section that diverges from the reference description with the requisite bidder information, if applicable, and/or text supplements modified by the author, if applicable.

If the StL No. is the same, the divergence can be incorporated in a text supplement. When non-standardized texts are used, the subdescription of the repeat description must be presented accordingly.

Note: The text "**except**" is generated by the application program.

Presentation of Repeat Description for a Subdescription with New Text

- Number of the subdescription that has been completely rewritten as compared to the reference description
- StL No. for the complete text of the standard work item
- Complete text of the standard work item with all text supplements.

Supplementary Rules for Subdescriptions

The subdescription number in the repeat description refers to the subdescription number of the reference description.

Unmodified subdescriptions remain a component of the description but are not shown.

For this reason, the subdescription number may not be incremented contiguously.

A subdescription is not necessary, should the changes refer only to the summary description.

The following are not permitted:

- the adding of new subdescriptions
- the removing of existing subdescriptions

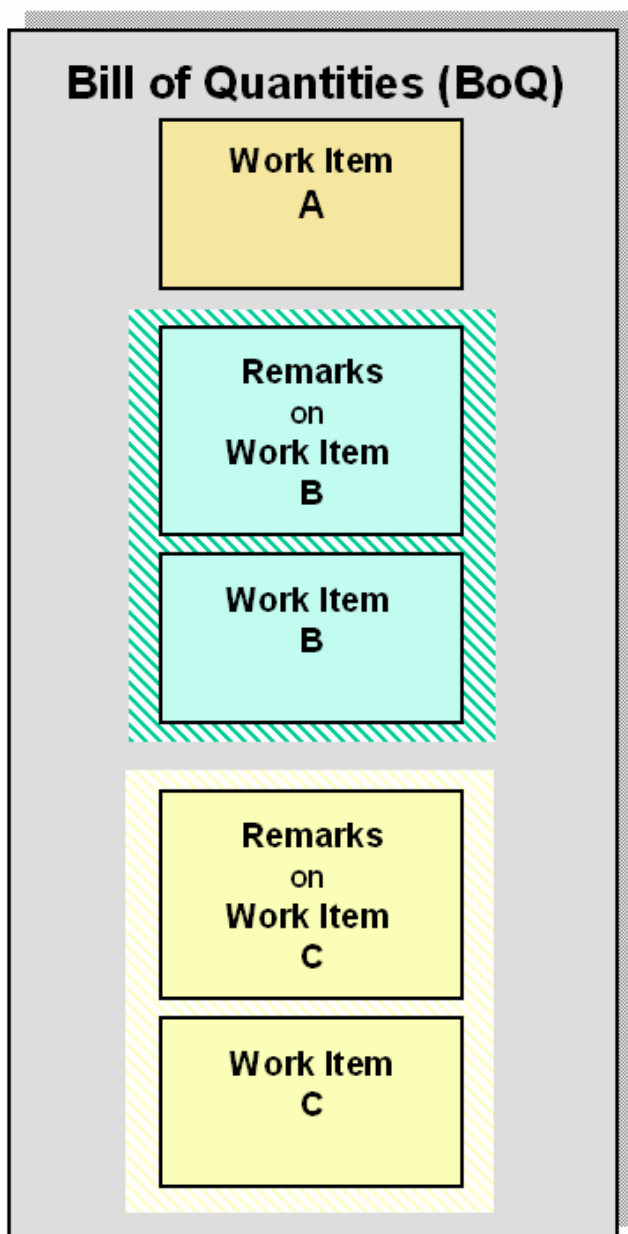
2.7.4.5 Remarks

Remarks are standardized or non-standardized descriptions that must be taken into account for pricing.

Remarks can refer to all or part of the BoQ or to individual items in the BoQ.

A unique assignment of remarks must be possible. If applicable, the reference can be taken from the text of the remark.

Remarks do not contain reference numbers and must not be placed inside work items. Remarks must not contain any bidder text supplements.



2.7.5 Special Item Types and Variants

Special item types and variants are introduced by an identifier.

2.7.5.1 Lump Sum Item

In the case of lump sum items, the quantity is = 1 or can be omitted.

Exception: In a settlement BoQ the quantity can also be ≤ 1 . If the lump sum item is simultaneously the provisional item without total cost, the quantity must be set at = 1, in order that the value of the element IT can be allocated the heading "Quantity * Unit Price" if the item is changed from a provisional to a normal lump sum item.

The unit is "lsum", "LSUM" or "Lsum".

2.7.5.2 Basic Variant and Alternate Variant

The terms alternate work item/alternate variant can also be replaced by optional work item/optional group. Both designations are officially approved.

The **basic variant** is the part of an item description for which the client provides one or more alternate variants in the bill of quantities. The basic variant can comprise one or more work items called basic work items and identified in the BoQ by **Basic Work Item**. If a BoQ category comprises only the work items from the basic variant, this BoQ category is called a basic category and identified in the BoQ by **Basic Category**.

A basic variant can be linked to one or more alternate variants. The basic variant can also have the status "rejected".

An **alternate variant** to a basic variant can comprise one or more work items called alternate work items and identified in the BoQ by **Alternate Work Item**. If a BoQ category comprises only the work items from one alternate variant, this BoQ category is called an alternate category and is identified in the BoQ by **Alternate Category**.

The bidder must offer the basic variant and all the alternate variants. The client generally decides on the variant before awarding the contract. Alternate variants must not be included in the bill of quantities as a means of inquiring after prices or in order to compensate for inadequate planning.

In order to keep an alternate variant from being included in the total bid price, the flag "unit price only" appears in place of the item total. In the case of a lump sum item, the unit price is replaced by the lump sum price. An alternate variant can also have the status "accepted".

The **basic variant and alternate variants are linked** by means of IDs and allocation numbers.

ALN: ID of the allocation number for a work item

ALNB: ID of the allocation number for a BoQ category

The allocation number following the "ALN" or "ALNB" ID links the basic variant to the alternate variants.

The allocation number has a maximum of four digits:

Digits 1-3: Group number identifying associated basic and alternate variants.

Digit 4: Serial no.: "0"

Basic variant "1" to "9" First to ninth alternate variants

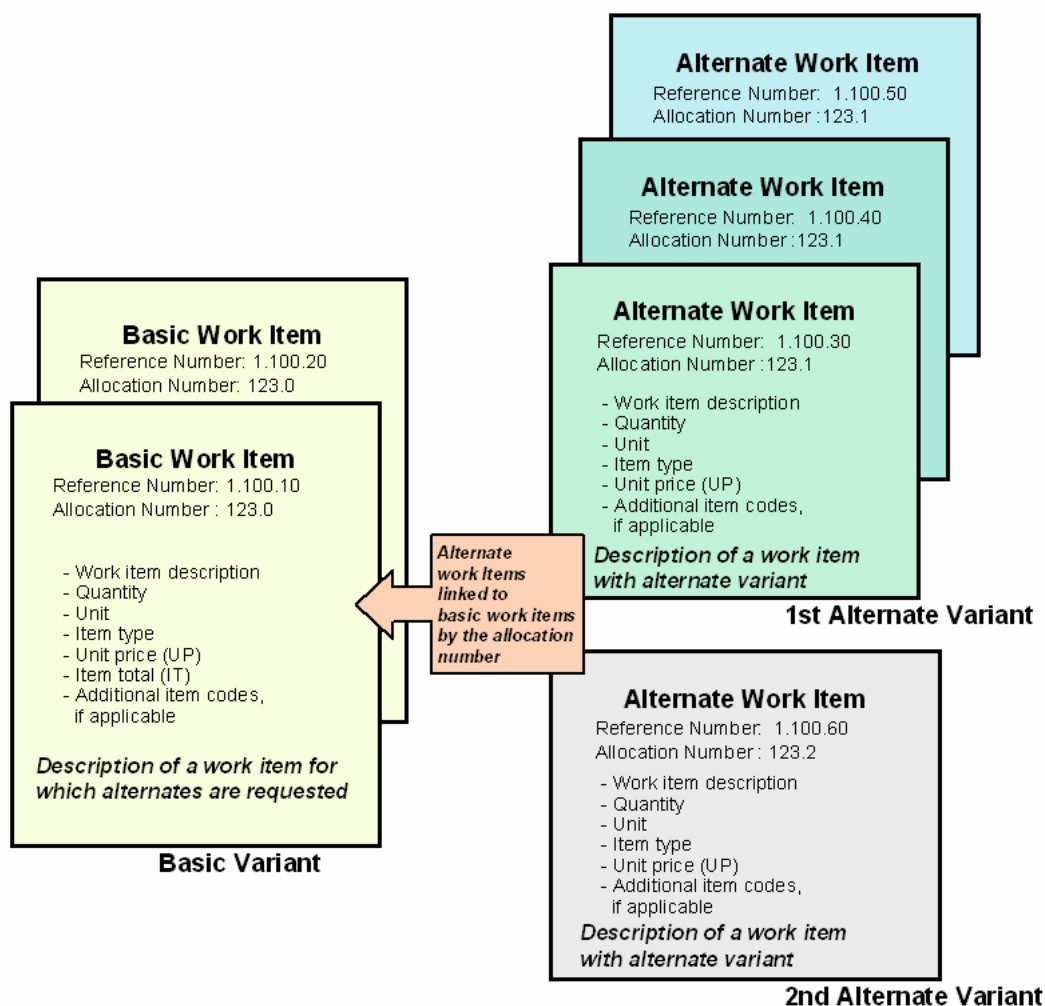
Note:

The basic variant precedes the alternate variants.

In the case of items, allocations are permitted only within the same BoQ category.

In the case of BoQ categories, allocations are permitted only on the same hierarchical level.

Basic Variant and Alternate Variant



2.7.5.3 Provisional Item

The most commonly used term “Provisional Item” can be replaced by “Eventual Item”.

In a provisional item, the client describes construction work that will be executed only if it proves necessary. Only construction work the necessity of which, despite all on-site and technical expertise, cannot yet be determined at the time the bill of quantities is generated may be included in provisional items. Provisional Items may only be included in a bill of quantities when, based on experience, they could prove necessary to the execution of contractual obligations.

In accordance with the particular guidelines specified, all the provisional items in a bill of quantities must be **uniform**, specifying either a unit price without an item total or a unit price with an item total.

The item type is identified as

**Provisional Item without IT or
Provisional Item with IT.**

Note on Provisional Item without IT:

The flag “unit price only” appears instead of the item total.

Regarding the lump sum item, the lump sum price appears instead of the unit price.

If the lump sum item is also the provisional item without IT, “Amount = 1” must be entered in order that should the item be altered from “Provisional” to “Normal Lump Sum Item”, the value of the element IT can be headed with “Quantity * Unit Price”.

Note on provisional item with IT:

If a provisional item is also an alternate work item, an IT is not entered.

2.7.5.4 Markup Item

A markup item makes it possible to charge a percentage-based markup on individual items, entire BoQ categories or item subquantities. The markup items contain information on the:

- marked up items
- quantity of individual items to be marked up
- percentage-based markup
- total markup

The item type is identified as **Markup Item**.

2.7.5.5 Work Item with “Quantity TBD by Bidder”

If the bidder is responsible for determining and proposing the quantities for certain work items, e.g. quantities of steel for prestressing as chosen by the bidder, the item is identified as **Quantity to Be Entered by Bidder**.

It is not possible to combine “lump sum” and “quantity TBD by bidder”.

2.8 Professional Regulations

2.8.1 Award

2.8.1.1 Award Information

Information to maintenance is only passed on via bills of quantity with the award type **Maintenance**.

Information to framework agreements is only passed on via bills of quantity with the award type **Framework Agreement**.

2.8.1.2 Information to the Supplement

Information to supplements is only passed on in Phase 88 – Supplement. This information is set up on the basis of the main contract (MC).

The origin of a supplementary item must be identifiable via its supplement number.

Request for Submission of a Supplementary Bid.

In this phase the client requests the contractor to provide bid costs for the supplementary work items, as acknowledged by the client. The client “acknowledges” the supplementary work items as potentially “registered” by the contractor. In the supplementary phase **Request for Submission of a Supplementary** all items receive the supplementary status “registered”.

Supplementary Bid.

In this phase the contractor makes an offer for the supplementary work items, as described by the client, on the basis of the MC. All items have the status “offered”.

Supplementary Contract.

In this phase the client commissions the contractor with the supplementary work items. The items have the status “withdrawn”, “rejected”, “appeal against rejection”, “acknowledged” or “approved”. The varying supplementary status of an item has priority over the supplementary status of the supplementary contract.

2.8.2 Bill of Quantities

2.8.2.1 Breakdown of Unit Prices

The client can stipulate a breakdown of the unit price into up to six components.

2.8.2.2 Breakdown of BoQ (Hierarchical Levels)

All hierarchical levels, with the exception of the Lot, can be designated as desired by the BoQ author e.g. Main Section, Section, Subsection or Title.

2.8.2.3 Price Reductions

If a percentage or total reduction is offered on a BoQ Category, the sum after the reduction (BoQ Category Sum less reduction amount) must also be stated.

2.8.2.4 Graphics

Graphics may be embedded in detailed texts.

2.8.2.5 Lots and Groups of Lots

The prospective client can combine Lots into Lot Groups.

2.8.2.6 Identification of Text Supplements for Standard Texts

In detailed bills of quantities, text supplements for standard texts must be identified by the text TA and/or TB in the line Catalog or ID number (StL No., STL B-Bau).

In outline bills of quantities, text supplements for standard texts must be identified by the text TA in the line Catalog or ID number (StL No., STL B-Bau).

2.8.2.7 Lump Sum Item

Quantity information can be omitted in a lump sum item.

2.8.2.8 Quantity TBD by Bidder

If "Quantity TBD by Bidder" is requested in the call for bid, the quantity may not be prescribed. It is not permissible to call for a "quantity split" if "Quantity TBD by Bidder" is requested.

2.8.2.9 Summary Description

At least one subdescription must be assigned to a summary description. This does not, however, apply to a summary description in a repeat description.

2.8.2.10 Bidder's Comments

The bidder may only enter bidder's comments if the client specifically allows for this in the BoQ. Only the client can facilitate the entry of bidder's comments in phase 83.

2.8.2.11 Markup Item

Markup items can be employed in a bill of quantity.

They offer the opportunity to define work changes as a work item.

The following three markup item variants are possible:

1. Markup on all items preceding the markup item in the current BoQ category.
2. Markup on all marked items preceding the markup item in the current BoQ category.
3. Markup on items referred to by a list in the current BoQ category.

Also applicable to variant 1:

A markup item contains the markups for all preceding items up to the markup item immediately preceding it. If it is not preceded by another markup item, it contains the markups for all the items up to the beginning of the BoQ category.

Also applicable to variant 2:

A markup item contains the markups for all preceding marked items up to and including the markup item immediately preceding it. If it is not preceded by another markup item, it contains the markups for all the items up to the beginning of the BoQ category.

Also applicable to variants 1 and 2:

If two markup items immediately follow one another, the markup sum is to be calculated from the preceding items to be marked up. In this way several markup items can be referred to in an equal manner.

Also applicable to variant 3:

If no markup quantity is stated for a referenced item, the item quantity is to be drawn up.

3 Structure of the Bill of Quantities

The following examples encompass the GAEB proposal of BoQ elements to be represented and one alternative. Only one representation is allowed per BoQ.

The two variants differ in the main in the arrangement of quantity, quantity units, unit price and total cost.

3.1 Examples of Structure of Items

BoQ Breakdown 1122PPPP – STL-Bau with TA

GAEB representation:

11.11. 55			
	STLB-Bau 4/2003 012 TA		
	Inner wall masonry Limestone, DIN V 106, KS L-R, stability class 12, Apparent density class 1.6, wall thickness 17.5 cm, Mortar MG II a, height up to 2.75 m, Product (client's product information) or similar.		
	5.170,000	m2	.....

Alternative representation:

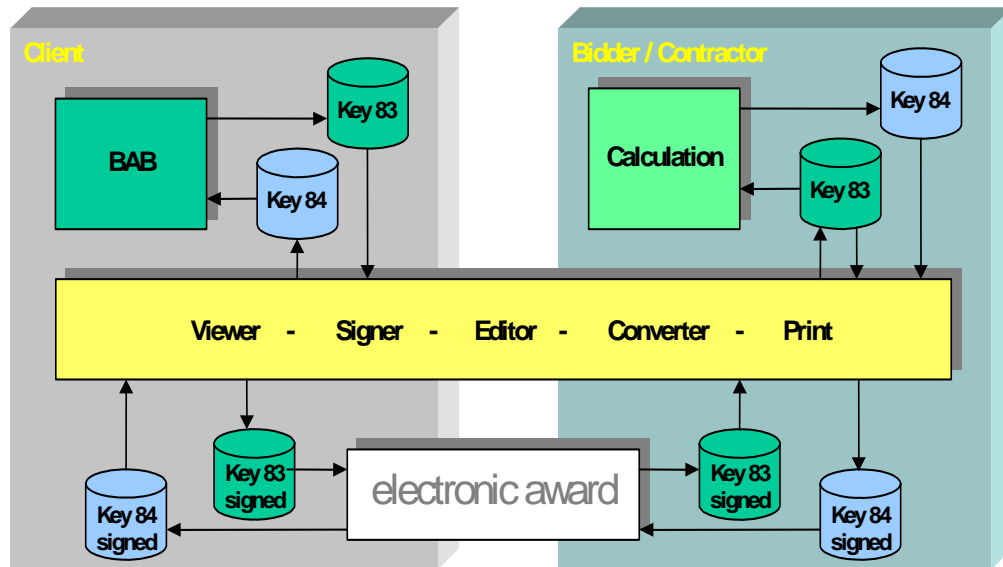
11.11. 55		5.170,000	m2	.....	.....
	STLB-Bau 4/2003 012 TA				
	Inner wall masonry Limestone, DIN V 106, KS L-R, stability class 12, Apparent density class 1.6, wall thickness 17.5 cm, Mortar MG II a, height up to 2.75 m, Product (client's product information) or similar.				

3.2 Visualisation Tools (Viewer)

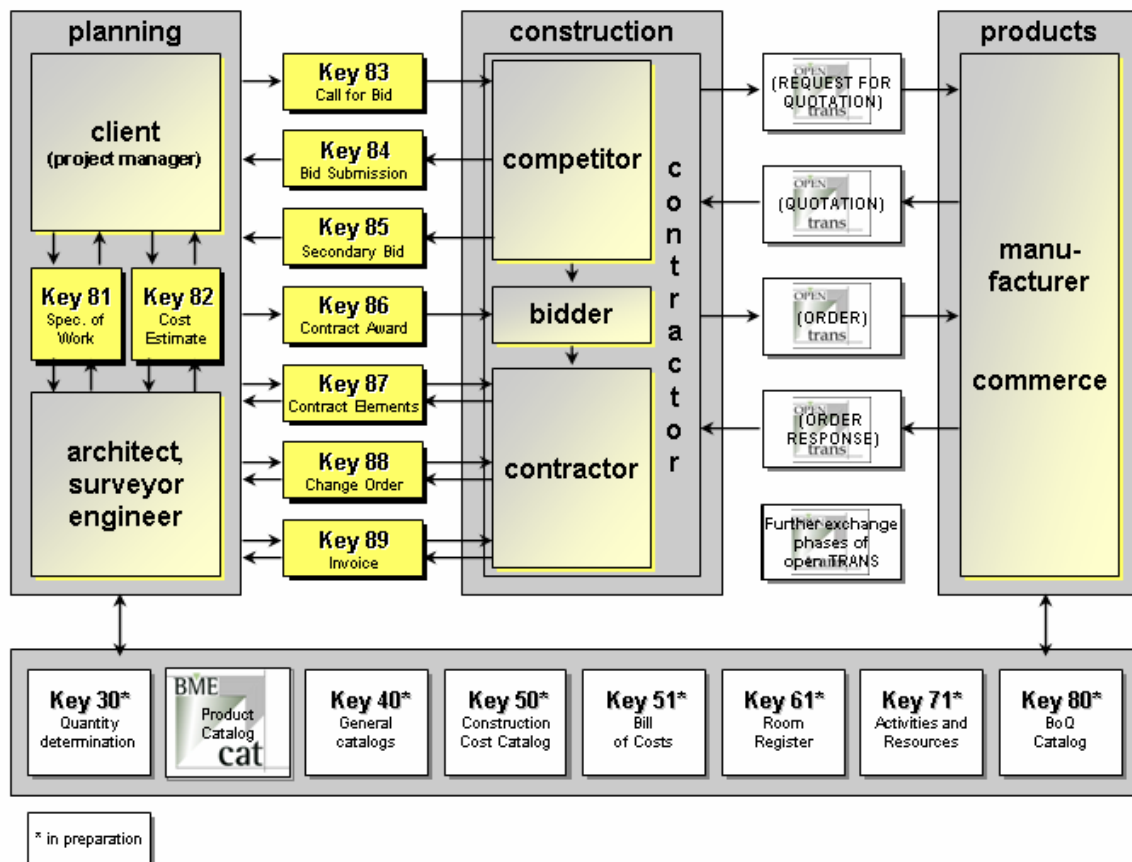
Viewers enable all partners to receive the identical representation of exchange data in print and on screen. It is recommended that the same viewer is used by all partners for the exchange of data, especially the electronic award of construction work.

Along with the printing and screen presentation functions, viewers can also be equipped with electronic signature and form filling (record of bidder details) functions.

The capacity to advise the user of possible errors in the exchange data is included in the basic functions.



4 Exchange Procedures in Construction



4.1 Basics

During each of the phases that a structure passes through from its initial planning to its completion, all the specialized areas produce information that must be up-to-date and available for the construction sequence. This construction sequence forms the basis for the exchange phases, which contain logical objects in which elements comprising keywords and their values are embedded. It is a matter of no consequence whether information is exchanged between skilled users of an integrated system or between external partners.

Generally speaking, data is exchanged in the following forms:

- in exchange files
- in exchange files with an electronic signature
- on paper or
- on paper and in additional exchange files

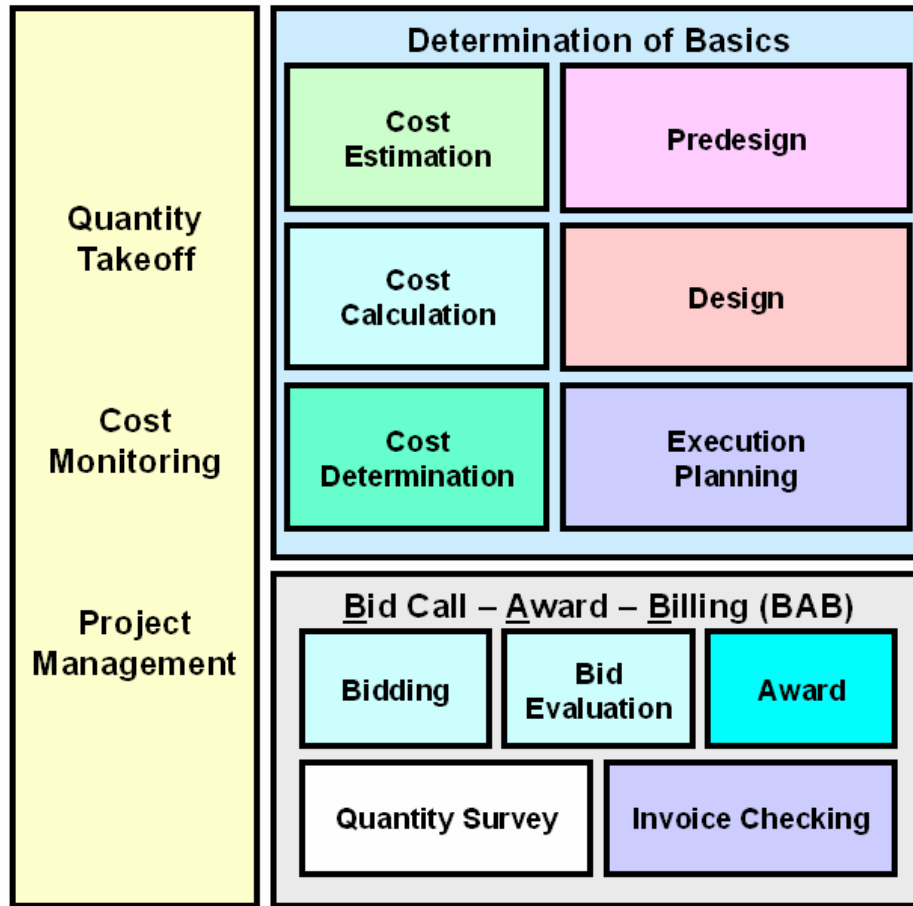
The form of data exchange that is legally binding must be arranged between the exchanging and contracting parties.

The data exchange must not be a precondition for participation in the competition.

The parties must guarantee that the data will be treated confidentially.

The framework files (.xsd) of the GAEB data exchange (GAEB DA XML) published by the GAEB form the basis of the electronic data exchange.

These framework files may not be altered.



GAEB DA XML not only regulates the exchange of bill of quantities data between clients and bidders/contractors but also the exchange of:

- Catalogs,
- Orders,
- Invoices,
- Scheduling activities,
- Cost elements for cost estimation and
- Room and component information.

This information can also be exchanged with manufacturers and dealers.

Each exchange phase is to be allocated its own file. If, for example, a group of costs catalog, a site catalog and two bidder's enquiries (bills of quantity) are to be transmitted to the bidder; this information must be contained in two catalog files and two BoQ files.

The objects contained within an exchange phase are determined by the necessary professional requirements at a particular point in time.

4.2 Organizational Regulations

In order to exchange data, the partners must reach a number of agreements on such topics as:

- deadlines
- costs
- electronic signature
- transmission routes and addresses
- data names and extensions

4.3 Procedural Steps – Exchange Phases

The GAEB has divided the exchange phases as follows:

Exchange Phase	Data Exchange Section
D30-D39	Quantity Determination
BMEcat	Product Catalog
D40-D49	Catalogs
D50-D59	Costs
D60-D69	Rooms and Components
D70-D79	Workflow Schedule
D80-D89	Bill of Quantities (award, invoice)
openTRANS	Request For Quotation, Order

The exchange phases D30 to D89 are defined by the GAEB.

The exchange phase DX0 (e.g. D80) is reserved for the exchange of information not specific to a particular project.

At this point in time the following exchange phases have been defined or are in the process of being defined:

Exchange of Quantity Determination	
D30	Formal Catalog on Quantity Determination
D31	Quantity Determination

Exchange of General Catalogs	
D40	General Catalog All data with and without a hierarchical structure for a specific category is designated a catalog, e.g. Cost Group Catalog, DIN 276, Quantity Units.

Exchange of Bills of Costs	
D50	Construction Cost Catalog A construction cost catalog is a collection of construction price information for components and units. The components and units can be described by means of work items.
D51	Bill of Costs e.g. As per DIN 276, the bill of costs is the most accurate preliminary calculation of the costs to be incurred or determination of actual costs as a basis for planning and execution decisions. A distinction is made among four different stages of costing, depending on the particular planning status: cost estimation - for pre-planning decisions cost calculation - detailed determination of expected costs cost determination - basis for award decision and cost monitoring during performance of work cost tracking - determination of actual costs based on final audited

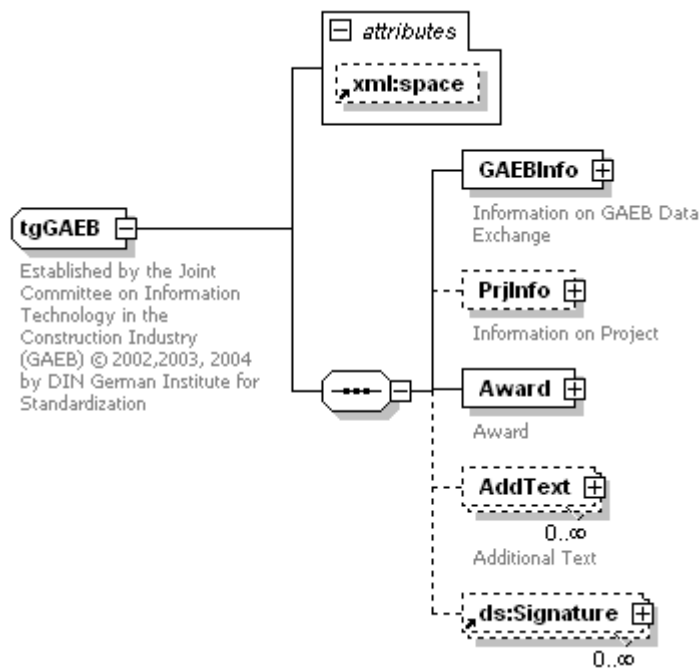
Exchange of Room and Component Information	
D61	Room Register The room and building register is a spatial building information system in which information related to the building can be stored and managed in a structured form. It performs central documentation and information functions.
Exchange of Workflow Schedules	
D71	Activities and Resources The central task of workflow scheduling is to generate workflow and production schedules to enable the completion of the project. The schedules are updated throughout the construction process so that they always serve as an accurate and up-to-date means of comparing completion targets with the actual status.
Exchange of BoQ Data	
D80	BoQ Catalog e.g. Generic-user bill of quantities arranged by specialized areas or trades as a source for object-specific bills of quantities.
D81	Specification of Work The specification of work contains the technical specifications, the BoQ and the necessary appendices. The BoQ always comprises the descriptions of work items and their attributes arranged in the order of their reference numbers. Generally speaking, it does not contain prices (exception: term contract work).
D82	Cost Estimate The cost estimate comprises the BoQ with estimated prices and is used for making award decisions. When updated, it also serves as a basis for monitoring costs during the performance of work.
D83	Bid Call Following coordination on the technical level, the bill of quantities without prices (exception: term contract work) is forwarded to the contractors interested in executing the construction work along with a request for bid submission.
D84	Bid Submission Bidders taking part in the bidding procedure enter their prices in the bill of quantities, supplementary texts and quantity TBD by bidder and return it as a bid to the agency awarding the contract. The deadline for submitting the bid is specified in the bid call.
D85	Secondary Bid In addition to the main bid, the bidder can also submit a secondary bid with alternate variants. The client decides whether to permit secondary bids.
D86	Contract Award Based on the bids submitted by the bidders and evaluated by the client, the contract for executing the construction work is awarded to the bidder who submits the most cost-effective bid. The contract award concludes the contract between the client and contractor.
D87	Contract Elements This exchange phase constitutes all the contract elements.
D88	Change Order On the basis of the main contract, additional, necessary work can be agreed upon during the execution of construction work. In this exchange phase an individual change order can be exchanged.
D89	Invoice The invoice is submitted with the associated work and quantity information and, if applicable, includes the payment history from previous invoices. The quantity information can also be linked to quantity surveys (e.g. REB/GAEB-VB).

Exchange between Contractor and Manufacturer/Dealer with openTRANS	
	Request For Quotation – Call for Bid On the basis of the call for bids or other requirements, the bidder (customer) approaches the manufacturer/dealer with a price inquiry for specific materials and products in the bill of quantities.
	Quotation The manufacturer/dealer returns a quotation for the materials and products in the bidder's (customer's) price inquiry. The bidder can now complete the bid based on this information.
	Order Once the contract has been received, the contractor can accept the quotation and order the materials and products from the manufacturer/dealer.
	Order Response The manufacturer/dealer sends a confirmation of the order to the ordering party.

5 XML Structures

The markup language XML is used for GAEB DA XML. XML framework documents developed by GAEB form the basis of the data exchange files. The entire structure is contained in these framework documents with the extension .xsd (**XML-Schema-Document – XML Framework Document**). This framework is enclosed as an attachment..

5.1 Outline



The order of the elements within an element and its conclusive necessity, or optional presence, is laid down in the framework. Additional professional regulations are contained in the section: "Supplementary Rules to the Framework for Elements and Types".

5.2 File Names

The data exchange files must be transmitted with the extension ".Xnn", where "X" represents "XML Data" and "nn" the number of the exchange phase. For the actual file name, the partners can arrange to use either an 8-character, DOS-compatible name or a longer name (up to 256 characters).

5.3 Electronic Signature

If a document requires an electronic signature the relevant rules of the W3C in their applicable form should be observed.

5.4 Explanation of Elements

Name	Explanation
AcceptDate (tgAwardInfo)	<u>Acceptance Date</u>
AcceptType (tgAwardInfo)	<u>Acceptance Type</u>
AcctNo (tgBank)	<u>Account No</u> (number)
AcctRecNo (tgOWN)	<u>Accounts Receivable No</u> (number)
AcctsPayNo (tgCTR)	<u>Accounts payable No</u> (number)
Alignment (tgBoQBkdn)	<u>Alignment</u> This element documents the sender's intention of aligning alphanumerical part reference numbers within the available space. If the attribute number = yes, this element has no value and it is always aligned to the right. If the attribute number = no, the alignment should proceed independently of this element.
ALNBGroupNo (tgBoQCtgy)	<u>GroupNo</u> (number) of the <u>allocation number</u> for identifying associated basic and alternate variants. For basic/alternate category only
ALNBSerNo (tgBoQCtgy)	<u>Serial No</u> (number) of the <u>allocation number</u> for identifying associated basic and alternate variants. For basic/alternate category only
ArtChIdx (tgSTLBBauID)	<u>Index</u> of descriptive <u>characteristic</u>
ArtChrIdent (tgSTLBBauID)	<u>Identifier</u> of descriptive <u>characteristic</u>
ArtNo (tgArticle)	<u>Article No</u> (number)
ArtOutline (tgArticle)	Brief (<u>Outline</u>) description of <u>Article</u>
AwardNo (tgOWN)	<u>Award No</u> (Number)
AwardNo (tgCTR)	<u>Award No</u> (Number)
BidComm (tgItem)	<u>Bidder Comment</u>
BidCommPerm (tgPrjInfo)	<u>Bidder Comment Permitted</u>
BidDate (tgAwardInfo)	<u>Bid date</u>
BidderNo (tgCTR)	<u>Bidder No</u> (number)

Name	Explanation
BidUpDown (tgMastAgrInfo)	Bidding Up and bidding Down procedure (VOB/A § 6 No.2)
BillQty (tgItem)	Billed Quantity (D88 only)
Brand (tgArticle)	Brand name of the product or brand label of series
BRNo (tgBank)	Bank Routing No (number) of financial institution
Cat (tgAwardInfo)	Contract Category [Open procedure] [Closed procedure] [Negotiation procedure] [Open call for bids] [Selective call for bids] [Negotiated contract] [International NATO tender]
Certific (tgGAEBInfo)	Test Certificate available
ChVIdent (tgSTLBBauID)	Characteristic Value Identifier
City (tgAddress)	City
CnstEnd (tgAwardInfo)	Projected End of Construction work
CnstSiteIDNo (tgCnstSite)	Construction Site ID No (number)
CnstSiteName (tgCnstSite)	Construction Site Name (index map)
CnstStart (tgAwardInfo)	Projected Start of Construction work
CODate (tgCOInfo)	Change Order Date of approval
COInit (tgCOInfo)	Change Order Initiating party [Client] [Contractor]
ComplBody (tgTextComplement)	Complement Body
ComplCaption (tgTextComplement)	Complement Caption
ComplTail (tgTextComplement)	Complement Tail
ComplTSA (tgCompleteText)	Contract Awarder's (Complete) Text Supplement
ComplTSB (tgCompleteText)	Bidder's (Complete) Text Supplement
ContrNo (tgAwardInfo)	Contract No (Number)

Name	Explanation
Contact (tgAddress)	<u>Contact</u> person
ContrDate (tgAwardInfo)	<u>Contract</u> <u>Date</u>
ContrLaw (tgMaintInfo)	<u>Law</u> of <u>Contract</u>
ContrTransDate (tgMaintInfo)	<u>Contract</u> <u>Transfer</u> <u>Date</u>
ContrTransTime (tgMaintInfo)	<u>Contract</u> <u>Transfer</u> <u>Time</u>
COREas (tgCOInfo)	<u>Change</u> <u>Order</u> <u>Reasons</u>
CostGrp (tgSTLBBauCtlg)	<u>Cost</u> <u>Group</u>
Country (tgAddress)	<u>Country</u> designation
CPVNo (tgCPVCode)	<u>CPV</u> nomenclature code <u>No</u> (number)
CPVText (tgCPVCode)	<u>CPV</u> nomenclature <u>Text</u>
CtlgCode (tgCtlgAssign)	<u>Catalog</u> <u>Code</u>
CtlgNam (tgCtlgAssign)	<u>Catalog</u> <u>Name</u>
CtlgName (tgSTLBBauCtlg)	<u>Catalog</u> <u>Name</u>
Deadline (tgMaintInfo)	<u>Deadline</u>
Descrip (tgPrjInfo)	Brief <u>Description</u> of project
DetailTxt (tgCompleteText)	<u>Detailed</u> <u>Text</u>
DiscountAmt (tgTotals)	<u>Discount</u> <u>Amount</u>
DiscountPcnt (tgTotals)	<u>Percentage</u> <u>Discount</u>
DiscountPcnt (tgItem)	<u>Percentage</u> <u>Discount</u>
DiscountPcnt (tgMarkupItem)	<u>Percentage</u> <u>Discount</u>
DP (tgAward)	GAEB <u>D</u> ata exchange <u>P</u> hase [81] Specification of Work [82] Initial cost [83] Call for Bid [84] Bid Submission [85] Secondary Bid [86] Contract award [88] Supplement

Name	Explanation
DPNo (tgOWN)	<u>DP No</u> (number)
DPNo (tgCTR)	<u>DP No</u> (number)
Email (tgAddress)	<u>E-mail</u> address
EvalEnd (tgAwardInfo)	<u>End</u> of bid examination and <u>Evaluation</u> period
Fax (tgAddress)	<u>Fax</u> number
GAEB	<u>GAEB</u>
Group (tgSTLBBauCtlg)	<u>Group</u> ID
ILN (tgAddress)	<u>ILN</u> for the address
InsAsDate (tgInsAs)	<u>I</u>nurance <u>A</u>ssociation Member since
InsAsName (tgInsAs)	<u>N</u>ame of employer's <u>I</u>nurance <u>A</u>ssociation
InsAsNo (tgInsAs)	<u>I</u>nurance <u>A</u>ssociation Member number
IT (tgItem)	<u>I</u>tem <u>T</u>otal
IT (tgMarkupItem)	<u>I</u>tem <u>T</u>otal
ITMarkup (tgMarkupItem)	Sum of all <u>Markup</u> <u>I</u>tem <u>T</u>otals
LblBank (tgBank)	<u>L</u>abel of the <u>B</u>ank
LblBoQ (tgBoQInfo)	<u>L</u>abel <u>B</u>ill <u>O</u>f <u>Q</u>uantities
LblBoQBkdn (tgBoQBkdn)	<u>L</u>abel of the <u>BoQ</u> <u>B</u>reak<u>d</u>own
LblPrj (tgPrjInfo)	<u>L</u>abel of the <u>P</u>roject
LblRefWage (tgWgChange)	<u>L</u>abel of the <u>R</u>eference <u>W</u>age
LblTime (tgBoQInfo)	<u>L</u>abel of unit of <u>T</u>ime
LblTx (tgBoQCtgy)	BoQ category <u>L</u>abel - <u>T</u>ext
LblUPComp1 (tgBoQInfo)	<u>L</u>abel of first (1.) UP <u>C</u>omponent
LblUPComp2 (tgBoQInfo)	<u>L</u>abel of first (2.) UP <u>C</u>omponent
LblUPComp3 (tgBoQInfo)	<u>L</u>abel of first (3.) UP <u>C</u>omponent

Name	Explanation
LblUPComp4 (tgBoQInfo)	<u>Label</u> of first (<u>4</u> .) UP <u>Component</u>
LblUPComp5 (tgBoQInfo)	<u>Label</u> of first (<u>5</u> .) UP <u>Component</u>
LblUPComp6 (tgBoQInfo)	<u>Label</u> of first (<u>6</u> .) UP <u>Component</u>
Length (tgBoQBkdn)	Subcode <u>Length</u>
LotGrNo (tgLotGrp)	<u>Lot Group No</u> (number)
LumpSumItem (tgItem)	ID of a <u>Lump Sum Item</u>
MaintType (tgMaintInfo)	<u>Type</u> of <u>Maintenance</u> [Maintenance] [Repair] [Modernization]
Markup (tgMarkupItem)	<u>Markup</u> percentage
MarkupIt (tgItem)	ID of <u>Item</u> to be <u>Marked up</u>
MarkupType (tgMarkupItem)	<u>Markup Type</u>
MastAgrBeg (tgMastAgrInfo)	<u>Master Agreement</u> Contract start date (<u>Begin</u>)
MastAgrDate (tgMastAgrInfo)	<u>Master Agreement</u> Contract <u>Date</u>
MastAgrDur (tgMastAgrInfo)	<u>Master Agreement</u> Contract period in months (<u>Duration</u>)
MastAgrEnd (tgMastAgrInfo)	<u>Master Agreement</u> Contract <u>End</u> date
MastAgrLbl (tgMastAgrInfo)	<u>Label</u> on <u>Master Agreement</u>
MastAgrVers (tgMastAgrInfo)	<u>Master Agreement</u> Contract <u>Version</u>
MaxContrVal (tgMastAgrInfo)	<u>Max. Value</u> of <u>Contract</u>
MinContrAwd (tgMastAgrInfo)	<u>Min. Contract Award</u> (for smallest contracts)
MinContrVal (tgMastAgrInfo)	<u>Min. Value</u> of <u>Contract</u> (limit for smallest contracts)
Name (tgBoQInfo)	<u>Name</u>
Name1 (tgAddress)	<u>Name</u> line <u>1</u>
Name2 (tgAddress)	<u>Name</u> line <u>2</u>
Name3 (tgAddress)	<u>Name</u> line <u>3</u>

Name	Explanation
Name4 (tgAddress)	Name line 4
NamePrj (tgPrjInfo)	Name of Project
NotApplBoQ (tgBoQCtgy)	BoQ Ctgy Not Applicable
NotifSiteIDNo (tgNotifSite)	Notif ication Site ID number
NotifSiteName (tgNotifSite)	Notif ication Site Name
NoUPComps (tgBoQInfo)	No Number of unit price Components
Num (tgBoQBkdn)	Numerical If this attribute is "Yes", the part Ref. No. in this level is to be interpreted as the numerical Ref. No. Only digits are allowed in this Ref. No. Leading zeroes are irrelevant for the interpretation. If the attribute is "No", the part Ref. No. in this level is to be interpreted as alphanumeric. Digits and letters in any order are allowed. All decimal places are relevant.
Number (tgContrValCode)	Number of contracts per master agreement
OpenDate (tgAwardInfo)	Opening Date for bids
OpenTime (tgAwardInfo)	Opening Time for bids
OutlCompl (tgBoQInfo)	Complete and Outline texts
OutlTSA (tgOutlineText)	Contract Awarder's (Outline)] Text Supplement
Pcode (tgAddress)	Postal Code
Percent (tgContrValCode)	Percentage of contracts per master agreement
PerfLbl (tgPerfDescr)	Performance description Label
PerfNo (tgPerfDescr)	Performance description No (number)
PerformPcnt (tgAwardInfo)	Performance surety as Percentage of award total including change orders
Phone (tgAddress)	Tele Phone number
PredQty (tgItem)	Predicted Quantity (forecast)
PrefBidType (tgCTR)	Preferred Bidder
PriceInfo (tgItem)	Price Information For maintenance only

Name	Explanation
ProcessType (tgMaintInfo)	<u>Type</u> of <u>Processing</u> [Standard contract] [Insurance claim] [Invoice to tenant] [Final apartment inspection and acceptance] [Third-party billing]
ProgName (tgGAEBInfo)	Conversion <u>Program</u>
ProgSystem (tgGAEBInfo)	<u>Program System</u>
ProvisAccpt (tgItem)	<u>Provisional</u> item <u>Accepted</u>
Qty (tgItem)	<u>Quantity</u>
Qty (tgQtySplit)	Sub <u>Quantity</u>
Qty (tgSubDescr)	<u>Quantity</u>
QtyPcnt (tgQtySplit)	Pro rata <u>Quantity</u> as a <u>Percentage</u>
QtySpec (tgSubDescr)	<u>Quantity</u> to be <u>Specified</u>
QtyTBD (tgItem)	ID of <u>Quantity To Be Determined</u> by bidder
QtyTBD (tgSubDescr)	ID of <u>Quantity To Be Determined</u> by bidder
QU (tgItem)	<u>Quantity Unit</u>
QU (tgSubDescr)	<u>Quantity Unit</u>
Question (tgCommunication)	<u>Question</u> for a data exchange partner
RedPriceComp (tgWgChange)	<u>Price Reduction Component</u> as a percentage
RefBoQCOInfo (tgCOInfo)	
RefDescr (tgItem)	ID of <u>Reference/repeat Description</u>
RefLotGrNo (tgWgChange)	<u>Reference to Lot Group No</u> (number)
RefLotNo (tgLotGrp)	<u>Reference to Lot No</u> (number)
RefLotNo (tgWgChange)	<u>Reference to Lot No</u> (number)
RefPerfNo (tgItem)	<u>Reference No</u> (number) of the <u>Performance</u> description
RefPerfNo (tgMarkupItem)	<u>Reference No</u> (number) of the <u>Performance</u> description

Name	Explanation
RefRNo (tgItem)	<u>Reference No</u> (number) of the <u>Reference</u> item
RefRNo (tgMarkupItem)	<u>Reference No</u> (number) of the <u>Reference</u> item
RequestIDNo (tgRequester)	<u>ID No</u> (number) of the <u>Requesting</u> party
RequestName (tgRequester)	<u>Name</u> of the <u>Requesting</u> party
Response (tgCommunication)	<u>Response</u> to the other data exchange partner
SCType (tgCTR)	<u>SubContractor Type</u> of work
SectorType (tgCTR)	<u>Sector Type</u>
SpecialType (tgAwardInfo)	<u>SpecialType</u> of Contract Category [Maintenance] [Master agreement] [Master maintenance agreement]
Street (tgAddress)	<u>Street</u> and number or "P.O. Box" and number
SubDNr (tgSubDescr)	<u>SubDescription Number</u>
SubmLoc (tgAwardInfo)	<u>Location</u> for <u>Submission</u>
SubQty (tgMarkupSubQty)	<u>Sub</u> quantity or <u>Quantity</u>
SumDescr (tgItem)	ID of <u>Summary Description</u>
Text (tgBoQText)	<u>Text</u>
TextOutITxt (tgOutITxt)	<u>TextOutIText</u>
TimeQu (tgItem)	<u>Time Quantity</u> estimate in Units of time (LbITime, see BoQInfo)
TotAfterDisc (tgTotals)	<u>Total After Discount</u>
Total (tgTotals)	Net <u>Total</u>
TotalGross (tgTotals)	<u>Gross Total</u> after discounts and value-added tax
TotalLSUM (tgTotals)	Lump <u>Sum Total</u>
TotContrVal (tgMastAgrInfo)	<u>Total Value</u> of <u>Contract</u>
Type (tgBoQBkdn)	Subcode <u>Type</u>
UP (tgItem)	<u>Unit Price</u>

Name	Explanation
UP (tgSubDescr)	<u>Unit Price</u>
UP110 (tgItem)	<u>Unit Price</u> for quantities > 110%
UPAvg (tgItem)	" Average " <u>Unit Price</u> For catalog data only
UPBkdn (tgItem)	Request for <u>UP Breakdown</u>
UPBkdn (tgSubDescr)	Request for <u>UP Breakdown</u>
UPComp1 (tgItem)	(First) <u>Unit Price Component 1</u>
UPComp1 (tgSubDescr)	(First) <u>Unit Price Component 1</u>
UPComp2 (tgItem)	(Second) <u>Unit Price Component 2</u>
UPComp2 (tgSubDescr)	(Second) <u>Unit Price Component 2</u>
UPComp3 (tgItem)	(Third) <u>Unit Price Component 3</u>
UPComp3 (tgSubDescr)	(Third) <u>Unit Price Component 3</u>
UPComp4 (tgItem)	(Fourth) <u>Unit Price Component 4</u>
UPComp4 (tgSubDescr)	(Fourth) <u>Unit Price Component 4</u>
UPComp5 (tgItem)	(Fifth) <u>Unit Price Component 5</u>
UPComp5 (tgSubDescr)	(Fifth) <u>Unit Price Component 5</u>
UPComp6 (tgItem)	(Sixth) <u>Unit Price Component 6</u>
UPComp6 (tgSubDescr)	(Sixth) <u>Unit Price Component 6</u>
UPFrom (tgItem)	" From " <u>Unit Price</u> For catalog data only
UPSpec (tgSubDescr)	<u>Unit Price</u> to be Specified
UPTo (tgItem)	" To " <u>Unit Price</u> For catalog data only
UPWgAvg (tgItem)	" Average " <u>Wage</u> component For catalog data only
UPWgFrom (tgItem)	" From " <u>Wage</u> component For catalog data only
UPWgTo (tgItem)	" To " <u>Wage</u> component For catalog data only
VAT (tgTotals)	<u>Value-Added Tax</u> as a %

Name	Explanation
VATID (tgAddress)	<u>V</u> alue added <u>T</u> ax <u>I</u> D number
Version (tgGAEBInfo)	GAEB DA XML <u>V</u> ersion
WarrantPcnt (tgAwardInfo)	Guarantee for <u>W</u> arranty obligations as <u>P</u> ercentage of billing total
WarrDur (tgAwardInfo)	<u>D</u> uration of <u>W</u> arranty
WarrEnd (tgAwardInfo)	<u>E</u> nd of <u>W</u> arranty
WarrUnit (tgAwardInfo)	<u>U</u> nit of <u>W</u> arranty
WCtg (tgSTLBBauCtlg)	<u>W</u> ork <u>C</u> ategory
WgChangeRate (tgWgChange)	<u>W</u> age <u>C</u> hange factor for each 1 Cent hourly wage increase in ‰ (per mil)
WICNo (tgDescription)	Catalog <u>N</u> o (number) (parent BoQ)

5.5 Explanation of Types

Name	Explanation
tgAccepted	<u>A</u> ccepted (for basic/alternate category only)
tgAddress	<u>A</u> ddress information
tgAddText	<u>A</u> dditional <u>T</u> ext
tgALNGroupNo	<u>G</u> roup <u>N</u> o (number) of the <u>A</u> llocation <u>n</u> umber for identifying associated basic and alternate variants. For basic/alternate work item only.
tgALNSerNo	<u>S</u> erial <u>N</u> o (number) of the <u>A</u> llocation <u>n</u> umber for identifying associated basic and alternate variants. For basic/alternate work item only
tgArticle	Information on an <u>A</u> rticle
tgAttAlignTable	Attribute for alignment left / center / right
tgAttBorder	Attribute for borders
tgAttCellpadding	Attribute for cell padding
tgAttColspan	Attribute for column span
tgAttFrame	Attribute for frames box / hside / void / vside
tgAttHeight	Attribute for height
tgAttRowspan	Attribute for row span
tgAttStyle	Attribute for script style. Details on the range of values for the style attribute are given in a separate chapter.

Name	Explanation
tgAttValign	Attribute for vertical alignment
tgAttWidth	Width attribute
tgAward	<u>Award</u> Information relating to the award process is filed in this object. It can be used in exchange phases D81-D88.
tgAwardInfo	Contract <u>Award Information</u>
tgBank	<u>Bank</u> information
tgBoQ	<u>Bill Of Quantities</u>
tgBoQBkdn	Information on <u>BoQ Breakdown</u>
tgBoQBody	<u>BoQ Body</u>
tgBoQQty	Information on <u>BoQ Category</u>
tgBoQInfo	<u>Information on BoQ</u>
tgBoQText	Detailed text (result of formatted text and text supplements)
tgbr	Line break
tgCnstSite	Information on <u>Construction Site</u>
tgCntryName	<u>Country Name</u> (international automobile code)
tgCntryType	<u>Country Type</u>
tgCOInfo	<u>Change Order Information</u>
tgCommunication	<u>Communication</u> Questions and answers from the various exchange partners are filed in this object.
tgCompleteText	<u>Complete Text</u>
tgCONo	<u>Change Order No</u> (Number) [Main contract] [1. Supplement] [2. Supplement] etc [complete contract component]
tgContrValCode	<u>Contract Value Code</u>
tgCOPhase	<u>Change Order data exchange Phase</u> [Bid call for change order] [Supplemental bid] [Supplemental agreement]
tgCOStatus	<u>Change Order Status</u> [Recognized] [Filed] [Offered] [Withdrawn] [Rejected] [Objection to rejection] [Formally acknowledged] [Approved]
tgCPVCode	<u>CPV</u> nomenclature <u>Code</u>

Name	Explanation
tgCtlgAssign	<u>C</u> atalog <u>A</u> ssignment
tgCTR	Bidder/ <u>C</u> on <u>t</u> ra <u>r</u> actor information
tgCur	<u>C</u> urrency
tgCurLbl	<u>C</u> urrency <u>L</u> abe <u>l</u>
tgDate	<u>D</u> ate
tgDecimal_11_3	Decimal value with a total of 11 characters, 3 of which come after the point.
tgDecimal_13_2	Decimal value with a total of 13 characters, 2 of which come after the point.
tgDecimal_13_3	Decimal value with a total of 13 characters, 3 of which come after the point.
tgDecimal_5_2	Decimal value with a total of 5 characters, 2 of which come after the point.
tgDecimal_6_4	Decimal value with a total of 6 characters, 4 of which come after the point.
tgDescription	<u>D</u> escription of Text organization
tgdiv	<u>d</u> ivision
tgFText	<u>f</u> ormated <u>t</u> ext
tgGAEBInfo	<u>I</u> nformation on <u>GAEB</u> Data Exchange
tgHourlt	ID of work <u>I</u> tem paid on <u>H</u> ourly basis
tgImage	<u>I</u> mage
tgInsAs	Info on employer's <u>I</u> nsurance <u>A</u> ssociation
tgInteger	Integral value
tgItem	<u>I</u> tem
tgItemlist	<u>l</u> ist of <u>I</u> tems
tgKeylt	ID of <u>K</u> ey <u>I</u> tem
tgLeftRight	left/right
tgli	<u>l</u> ist <u>i</u> tem
tgLotGrp	<u>L</u> ot <u>G</u> roup
tgMaintInfo	For maintenance only : <u>M</u> aintenance <u>I</u> nformation
tgMarkupItem	<u>M</u> arkup <u>I</u> tem
tgMarkupSubQty	<u>S</u> ub <u>Q</u> uantity to be <u>M</u> arked <u>u</u> p
tgMastAgrInfo	For master agreement only : <u>M</u> aster <u>A</u> greement <u>I</u> nformation
tgMLText	<u>M</u> ulti- <u>l</u> ined <u>t</u> ext
tgNonNegativeInteger	<u>N</u> on- <u>n</u> egative <u>i</u> ntegral value
tgNormalizedString	<u>N</u> ormalized <u>S</u> tring with unlimited length
tgNormalizedString10	<u>N</u> ormalized <u>S</u> tring with maximum length 10
tgNormalizedString100	<u>N</u> ormalized <u>S</u> tring with maximum length 100
tgNormalizedString12	<u>N</u> ormalized <u>S</u> tring with maximum length 12
tgNormalizedString120	<u>N</u> ormalized <u>S</u> tring with maximum length 120
tgNormalizedString15	<u>N</u> ormalized <u>S</u> tring with maximum length 15
tgNormalizedString20	<u>N</u> ormalized <u>S</u> tring with maximum length 20

Name	Explanation
tgNormalizedString256	<u>Normalized String</u> with maximum length 256
tgNormalizedString3	<u>Normalized String</u> with maximum length 3
tgNormalizedString30	<u>Normalized String</u> with maximum length 30
tgNormalizedString4	<u>Normalized String</u> with maximum length 4
tgNormalizedString40	<u>Normalized String</u> with maximum length 40
tgNormalizedString5	<u>Normalized String</u> with maximum length 5
tgNormalizedString55	<u>Normalized String</u> with maximum length 55
tgNormalizedString60	<u>Normalized String</u> with maximum length 60
tgNormalizedString8	<u>Normalized String</u> with maximum length 8
tgNormalizedString80	<u>Normalized String</u> with maximum length 80
tgNotAppl	<u>Not Applicable</u>
tgNotifSite	Information on <u>notification Site</u>
tgol	<u>ordered list</u>
tgOutlineText	<u>OutlineText</u>
tgOutlTxt	<u>Outline Text</u>
tgOWN	<u>Owner</u> information
tgp	<u>paragraph</u>
tgPerfDescr	<u>Performance Description</u>
tgPositiveInteger	<u>Positive Integral</u> value
tgPrjInfo	<u>Information on Project</u>
tgProduct	<u>Product</u> information
tgProvis	ID of a <u>Provisional</u> item
tgQtySplit	<u>Quantity Split</u> (Assignment of subquantities)
tgRefBoQ	<u>Reference</u> (label) of contract <u>Bill of Quantities</u>
tgRefBoQCtgy	<u>Reference</u> (label) of category <u>Bill of Quantities</u>
tgRefItem	<u>Reference to Item</u>
tgRefLotGrp	<u>Reference to Lot Group</u>
tgRemark	<u>Remark</u>
tgRequester	Information on <u>Requesting</u> party
tgRNoPart	<u>Reference Number Part</u>
tgspan	<u>span</u>
tgSTLBBau	<u>STLB-Bau</u> code
tgSTLBBauCtlg	Code for work <u>catalog</u> and group (<u>STLB-Bau</u>)
tgSTLBBauID	Code for a descriptive characteristic (<u>STLB-Bau ID</u>)
tgStLNo	Master <u>No</u> (number) (<u>StLB/STLK</u>)
tgString	<u>String</u>
tgSubDescr	<u>Subdescription</u>
tgtable	<u>table</u>
tgtd	<u>table data</u>
tgTextComplement	<u>Text Complement</u>

Name	Explanation
tgth	<u>t</u> able <u>h</u> ead <u>e</u> r
tgTime	<u>T</u> ime
tgTotals	BoQ <u>T</u> otals
tgtr	<u>t</u> able <u>r</u> ow
tgul	<u>u</u> nordered <u>l</u> ist
tgVersDate	<u>D</u> ate of <u>V</u> ersion
tgWgChange	<u>W</u> age <u>C</u> hange
tgYesNo	

5.6 Explanation of Complex Types

Name	Explanation
BoQText	<u>B</u> ill <u>o</u> f <u>Q</u> uantities <u>T</u> ext
FText	<u>F</u> ormated <u>T</u> ext
MLText	<u>M</u> ulti- <u>L</u> ined <u>T</u> ext
RefBoQCtgyType	<u>R</u> eference of <u>B</u> ill <u>o</u> f <u>Q</u> uantities <u>C</u> ategory <u>T</u> ype
RefBoQType	<u>R</u> eference of <u>B</u> ill <u>o</u> f <u>Q</u> uantities <u>T</u> ype
RefItemType	<u>R</u> eference of <u>I</u> tem <u>T</u> ype
RefLotGrpType	<u>R</u> eference of <u>L</u> ot <u>G</u> roup <u>T</u> ype

5.7 Rules for D80 to D88

AwardInfo	<ol style="list-style-type: none"> 1) The object COInfo exists only in D88. 2) The MaintInfo object exists only if the SpecialType element with one of the values "Maint" or "MastMaintAgree" also exists. 3) The MastAgrInfo object exists only if the SpecialType element with one of the values "MastAgree " or" MastMaintAgree" also exists.
BoQBkdn	<ol style="list-style-type: none"> 1) A label can be specified only for the BoQLevel type. 2) The length of the Index must = 1.
BoQBody	If a BoQCtgy does not exist, a LotGrp object cannot exist.
BoQCtgy	
BoQInfo	<ol style="list-style-type: none"> 1) The BoQBkdn object must exist exactly once for each hierarchical level used. 2) The total length of all subcodes in the BoQBkdn must not exceed 14. 3) A BoQBkdn object of the type Lot must be in the first position. 4) Only one BoQBkdn object of the type Lot can exist. 5) A BoQBkdn object of the type Item must exist exactly once. 6) Up to five BoQBkdn objects of the type BoQLevel or one BoQBkdn object of the type Lot and up to four BoQBkdn objects of the type BoQLevel can be positioned before the BoQBkdn object of the type Item. 7) If a BoQBkdn object of the type Index exists, it must be positioned after the BoQBkdn object of the type Item. 8) A BoQBkdn object of the type Index may exist no more than once. 9) The NoUPComps element must exist if unit prices are to be broken down. 10) The number of existing LblUPCompn elements corresponds exactly to the number specified by the value of the NoUPComps element.
COInfo	<ol style="list-style-type: none"> 1) If the value of the COPhase element = CallChangOrder, the change order status is COStatus = Filed for all items. The COStatus element is not mandatory in the COInfo, Item and MarkupItem objects. 2) If the value of the COPhase element = SupplBid, the change order status is COStatus = Offered for all items. The COStatus element is not mandatory in the COInfo, Item and MarkupItem objects. 3) If the value of the COPhase element = SupplAgree, the value of the COStatus element applies to all items for which no divergent value is contained in the Item or MarkupItem object. The values of the COStatus element in the Item or MarkupItem object have priority over the values in the COInfo object.
Description	<ol style="list-style-type: none"> 1) If the DetailTxt object contains one or more text supplements, the element ComplTSA and/or the ComplTSB element must exist. 2) If the OutlTxt object contains one or more text supplements, the element ComplTSB must exist.

Item	<ol style="list-style-type: none"> 1) If the RefRNo element exists, the RefPerfNo element may not exist. 2) The Qty element may be omitted only if the QtyTBD element or the LumpSumItem element also exists. 3) If the QtyTBD element exists, the Qty element in D83 may not exist. 4) The elements UPComp1 to UPComp6 may only exist if the UPBkdn element is omitted. 5) The QtySplit object may not exist if the QtyTBD element exists. 6) The totals of the subquantities assigned by QtySplit must yield the item quantity. 7) The Qty and QU elements and the Description object may be omitted only from DA (data exchange phase) 84. 8) The CONo element must exist for supplemental items. 9) For those supplemental items for which the COStatus element does not exist, the status specified in the COInfo object in the COStatus element applies. 10) If the SumDescr element exists, the SubDescr element must also exist. However, this is not applicable in the case of a summary description within a repeat description. 11) For supplemental items the CONo element must exist. 12) For those supplemental items for which the COStatus element does not exist, the status specified in the COInfo object in the COStatus element applies.
LotGrp	One LotNo element exists for each lot belonging to the lot group. The LotNo is derived from the value of the highest hierarchical level in the breakdown selected.
MaintInfo	The elements ContrLaw and Deadline may not exist in D89.
MarkupItem	<ol style="list-style-type: none"> 1) A markup item with Markup Type = IdentAsMark contains the markups for all preceding items with Markuplt up to the next preceding markup item. If no preceding markup item exists, it contains the markups for all the items with Markuplt up to the beginning of the BoQ category. If one markup item is immediately preceded by another, the amount to be marked up is calculated from the same preceding markup items. This allows several markup items to be calculated on the same basis. 2) A markup item with Markup Type = AllInCat contains the markups for all preceding items up to the beginning of the BoQ category regardless of whether or not Markuplt exists. If one markup item is immediately preceded by another, the amount to be marked up is calculated from the same preceding markup items. This allows group markups to be calculated on the same basis. 3) A markup item with Markup Type = ListInSubQty contains all the markups for the items listed in the MarkupSubQty objects. If the value of the SubQty component is omitted from a MarkupSubQty object, the markup is based on the total item quantity. 4) A markup item with MarkupType = ListInSubQty, the MarkupSubQty object must exist at least once. If MarkupType has another value, the MarkupSubQty object must not exist.
PerfDescr	<ol style="list-style-type: none"> 1) The PerfNo must be unique throughout the entire BoQ. The BoQ may not contain two performance descriptions with the same number. 2) The PerfDescr object must be positioned before the Item objects that refer to it.
Remark	The element CompITSB may not exist in the Description object.
STLBBauID	The STLBBauID objects can be arranged in any order.
Totals	<p>If either the element DiscountPcnt or the element DiscountAmt exists, the element TotAfterDisc with the value Total less DiscountPcnt or DiscountAmt must exist.</p> <p>The elements VAT and TotalGross may not exist, if the Totals refer to a</p>

	BoQCtgy object which is not a Lot.
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5.8 Additional Regulations for D84

In Element		
Award	these elements are omitted:	OWN Requester CnstSite NotifSite AddText
Award	this element must be present:	CTR
AwardInfo	these elements are omitted:	Cat SpecialType OpenDate OpenTime EvalEnd SubmLoc CnstStart CnstEnd ContrNo ContrDate AcceptType AcceptDate WarrDur WarrUnit WarrEnd PerformPcnt WarrantPcnt COInfo MaintInfo MastAgrInfo
BoQBody	this element is omitted:	Remark
BoQCtgy	this element must be present:	Totals
BoQCtgy	these elements are omitted:	LblTx CPVCode COno COStatus ALNBGroupNo ALNBSerNo Accepted NotApplBoQ CtlgAssign
BoQInfo	these elements are omitted:	LblBoQ CPVCode CoNo CoStatus Date OutlCompl BoQBkdn NoUPComps LblUPComp1 LblUPComp2 LblUPComp3 LblUPComp4 LblUPComp5

In Element		
		LblUPComp6 LblTime CtlgAssign
BoQInfo	this element must be present:	Totals
Complete Text	these elements are omitted:	CompITSA CompITSB OutlineText
Description	these elements are omitted:	STLBBau StLNo WICNo OutlineText
DetailText	this element is omitted:	Text
GAEB	this element is omitted:	AddText
Item	these elements are omitted:	ALNGroupNo ALNSerNo Accepted Provis ProvisAcpt LumpSumItem NotAppl Hourlt Keylt UPBkdn Markuplt COno COStatus RefDescr RefRNo RefPerfNo QtyTBD QtySplit PredQty BillQty QU CtlgAssign UPFrom UPAvg UPTo UPWgFrom UPWgAvg UPWgTo SumDescr Product
Item	this element is only used to provide information on free amounts:	Oty
ItemList	this element is omitted:	Remark
MarkupItem	these elements are omitted:	ALNGroupNo ALNSerNo Accepted Provis NotAppl

In Element		
		HourIt KeyIt CONo COStatus RefRNo RefPerfNo MarkupType MarkupSubQty CtlgAssign
MarkupItem	this element must be present:	ITMarkup
PerfDescr	these elements are omitted:	CONo PerfLbl
PrjInfo	these elements are omitted:	LblPrj Descrip Cur CurLbl BidCommPerm Communication AddText
Remark	this elements is omitted:	CONo
SubDescr	these elements are omitted:	QtySpec QtyTBD UPSpec UPBkdn
TextComplement	these elements are omitted:	ComplCaption ComplTail
WgChange	this element must be present:	WgChangeRate

5.9 Structural Features BoQ Text

The attribute "style" has several characteristics with an accompanying range of values. Each characteristic has a range of values from which a value must be selected.

Characteristics are to be separated from their values by ":"

Characteristics are to be separated from each other by ";"

All characteristics are to be enclosed within ""

In exceptional cases it is possible that a characteristic may be allocated several values, which are to be separated from one another by a space.

Syntax: style="Characteristic name1: Value1; Characteristic name2: Value2; ..."

Characteristic	Range of Values	Explanation	Limited to elements:
font style		script	
	italics normal	italics normal script	
font size		script size	
	medium xx-small x-small small smaller larger x-large xx-large	medium ("visibly smaller than normal") ("visibly larger than normal")	
font weight		script weight	
	bold normal	bold	
text decoration			
	line through		
	overline		
	underline none	normal	
color		text color	
	aqua black blue fuchsia gray green lime maroon navy olive purple red silver teal white		

Characteristic	Range of Values	Explanation	Limited to elements:
	yellow #rrggbb rgb(r,g,b)		
background		background color	
vertical align			
	top middle bottom sub super		
text align		horizontal alignment	
	left center right justify		
font family	no limitation		
width			<table>, <td>, <th>,
	nn nn%	number (absolute value in pixels) number (relative relating to father element) + range of values of font size (see font size characteristic)	
margin top			<p>, <div>
	nnUU	nn = number (absolute value) UU = unit, one of the following values: cm, mm, in, pt, pc, px, % (per cent relating to father element)	
margin right			<p>, <div>
	nnUU	nn = UU = unit, one of the following values: cm, mm, in, pt, pc, px, % (per cent relating to father element) number (absolute value)	
margin bottom			<p>, <div>
	nnUU	nn = number (absolute value) UU = unit, one of the following values: cm, mm, in, pt, pc, px, % (per cent relating to father element)	
margin left			<p>, <div>
	nnUU	nn = number (absolute value) UU = unit, one of the following values: cm, mm, in, pt, pc, px, % (per cent relating to father element)	

Characteristic	Range of Values	Explanation	Limited to elements:
list style			,
	disc circle square decimal lower-roman upper-roman lower-alpha upper-alpha		
	inside outside		
border			<p>, <div>, <table>, <td>, <th>
	nn	nn = number (in pixels)	
border top			<p>, <div>, <table>, <td>, <th>
	nn	nn = number (in pixels)	
border left			<p>, <div>, <table>, <td>, <th>
	nn	nn = number (in pixels)	
border bottom			<p>, <div>, <table>, <td>, <th>
	nn	nn = number (in pixels)	
border right			<p>, <div>, <table>, <td>, <th>
	nn	nn = number (in pixels)	
border style			<p>, <div>, <table>
	none dotted dashed solid double		
border color			<p>, <div>, <table>,
	as color		
align		horizontal alignment	<table>, <tr>, <td>, <th>
	left center right justify		
line height	nn	nn = number (in pixels)	<p>
text indent	no limitation		<p>

6 Remarks on Commodity Enterprise in Building Process with BMEcat/openTrans

6.1 Introduction

This chapter describes how the BMEcat/openTRANS version is to be applied, according to the GAEB. The BME's documentation should be referred to. Any corrections will be made exclusively by the BME.

The examples were based on the currently available documents from BMEcat/openTRANS 2.0.

Up-to-date information on BMEcat/openTRANS can be found at www.openTRANS.org and www.gaeB-da-xml.de.

6.2 Request For Quotation (RFQ)

Every valid RFQ document in the openTRANS® format commences with the root element ORDER and consists of a heading (RFQ_HEADER), an item list (RFQ_ITEM_LIST) and a summary (RFQ_SUMMARY).

The document opens with the header, containing universal data which is applicable for all types of business data exchanges, such as information on the supplier or a framework agreement existing between the buyer and supplier. The header contains initial information on the subsequent item list.

The item list contains the individual items featured in the request for quotation. Information from the header is adopted in the item sections, as long as the item sections have not been allocated a heading. This applies to all elements with the exception of the element PARTIAL_SHIPMENT_ALLOWED. If this element is present in the header, it may not be used as an item section.

The summary contains a summary of the request for quotation information. The information in this element is redundant and can be used to facilitate controls and statistical analyses.

6.2.1 Practical Example, RFQ

```

<ORDER Version="2.0" Type="standard">
  <RFQ_HEADER>
    <RFQ_INFO>
      <RFQ_ID>345678</RFQ_ID>           Request for quotation
      <RFQ_DATE>2004-05-10</RFQ_DATE>
      ...
    </RFQ_INFO>
  </RFQ_HEADER>
  <RFQ_ITEM_LIST>
    <RFQ_ITEM>
      <LINE_ITEM_ID>00010101</LINE_ITEM_ID>   Item number
      <SUPPLIER_AID>665775043</SUPPLIER_AID>   Supplier's article number
      <QUANTITY>100</QUANTITY>
      <DESCRIPTION_SHORT>
        Complete sink
      </DESCRIPTION_SHORT>
      ...
    </RFQ_ITEM>
  </RFQ_ITEM_LIST>
  <RFQ_SUMMARY>
    ...
  </RFQ_SUMMARY>
</ORDER>

```

6.3 Quotation

Every valid QUOTATION document in the openTRANS® format commences with the root element QUOTATION and consists of a heading (QUOTATION_HEADER), an item list (QUOTATION_ITEM_LIST) and a summary (QUOTATION_SUMMARY).

The document opens with the header, containing universal data which is applicable for all types of business data exchanges, such as information on the supplier or a framework agreement existing between the buyer and supplier. The header contains initial information on the subsequent item list.

The item list contains the individual items featured in the contract. Information from the header is adopted in the item sections, as long as the item sections have not been allocated a heading. This applies to all elements.

The summary contains a summary of the contract information. The information in this element is redundant and can be used to facilitate controls and statistical analyses.

6.3.1 Practical Example, Quotation

```

<QUOTATION Version="2.0" Type="standard">
  <QUOTATION_HEADER>
    <QUOTATION_INFO>
      <QUOTATION_ID>345678</RFQ_ID>           Supplier's quotation number
      <QUOTATION_DATE>2004-05-10</RFQ_DATE>
      ...
    </QUOTATION_INFO>
  </QUOTATION_HEADER>
  <QUOTATION_ITEM_LIST>
    <QUOTATION_ITEM>
      <LINE_ITEM_ID>00010101</LINE_ITEM_ID>   Item number
      <ARTICLE_ID>
        <SUPPLIER_AID>665775043</SUPPLIER_AID>   Supplier's article number
        ...
      <DESCRIPTION_SHORT>
        Complete sink
      </DESCRIPTION_SHORT>
    </QUOTATION_ITEM>
  </QUOTATION_ITEM_LIST>
  <QUOTATION_SUMMARY>
    ...
  </QUOTATION_SUMMARY>
</QUOTATION>

```



```

        </ARTICLE_ID >
        <QUANTITY>100</QUANTITY>
        <ARTICLE_PRICE>
            <PRICE_AMOUNT>800</PRICE_AMOUNT>           Unit price
            <PRICE_LINE_AMOUNT>80000</PRICE_LINE_AMOUNT> Total price
        </ARTICLE_PRICE>

        ...
    </ QUOTATION _ ITEM>
</ QUOTATION _ ITEM_LIST >
< QUOTATION _ SUMMARY>
    ...
</ QUOTATION _ SUMMARY>
</QUOTATION>

```

6.4 Order

Every valid ORDER document in the openTRANS® format commences with the root element ORDER and consists of a header (ORDER_HEADER), an item list (ORDER_ITEM_LIST) and a summary (ORDER_SUMMARY).

The document opens with the header, containing universal data which is applicable for all types of business data exchanges, such as information on the supplier or a framework agreement existing between the buyer and supplier. The header contains initial information on the subsequent item list.

The item list contains the individual items featured in the contract. Information from the header is adopted in the item sections, as long as the item sections have not been allocated a heading. This applies to all elements with the exception of the element PARTIAL_SHIPMENT_ALLOWED. If this element is present in the header, it may not be used as an item section.

The summary contains a summary of the contract information. The information in this element is redundant and can be used to facilitate controls and statistical analyses.

6.5 Order Confirmation

Every valid ORDERRESPONSE document in the openTRANS® format commences with the root element ORDERRESPONSE and consists of a header (ORDERRESPONSE_HEADER), an item list (ORDERRESPONSE_ITEM_LIST) and a summary (ORDERRESPONSE_SUMMARY).

The document opens with the header, containing universal data which is applicable for all types of business data exchanges, such as information on the supplier or a framework agreement existing between the buyer and supplier. The header contains initial information on the subsequent item list.

The item list contains the individual items featured in the contract. Information from the header is adopted in the item sections, as long as the item sections have not been allocated a heading.

The summary contains a summary of the request for quotation information. The information in this element is redundant and can be used to facilitate controls and statistical analyses.

6.6 General Catalog D40, BMEcat/Catalog Document

All companies wishing to offer their products in digital form with the help of the BMEcat Standard must generate a catalog document.

There are three transaction types available for the transfer of documents: total catalog, up-to-date product or price information.

All valid catalog documents in the BMEcat format commence with the "BMECAT" element and each consists of precisely one header and one transaction component. All other BMEcat elements remain in this context.

7 Appendix

7.1 Structure of Work Item Description

GAEB Representation:

11.22.33.44.5.PPPP.I				
Basic work item ZZ 001.0				
Alternate variant ZZ 001.1				
Provisional item with total cost				
Provisional item without total cost				
Quantity to be entered by bidder				
Summary description				
Subdescription 01				
Markup item for all preceding marked items in the BoQ category				
Markup item for all preceding items in the BoQ category				
Markup item for all listed Items				
Markup item				
Item omitted				
Assigned				
Not assigned				
Reference description				
Repeat description for 11.22.33.44.5.PPPP.I, <Brief communication-----> however				
Performance as per performance description 010				
Supplement 001 approved				
	StL No. with TA and/or TB changes in case of repetition () STLB-Bau to LB Catalog <Outline text ----->			
(12)	<Introduction text supplement to outlineText 'TA' conclusion text supplement			
	<Detailed text with diagrams, tables and classification ----->			
(12)	< Introduction text supplement '.....' conclusion text supplement,' < Detailed text with diagrams, tables and classification and ----->			
(51)	Cover assembly '.....'			
	Bidder's comments			
	These are the bidder's free comments			
	Quantity split			
	Text for the classification of part quantity	12.345.678,012	<ME>	
	Text for the classification of part quantity	12.345.678,012	<ME>	
	Unit price breakdown			
		Unit price component1	1.234.567.890,234	
		Unit price component2	1.234.567.890,234	
		Unit price component3	1.234.567.890,234	
		Unit price component4	1.234.567.890,234	
		Unit price component5	1.234.567.890,234	
		Unit price component6	1.234.567.890,234	
	Quantity released	12.345.678,012	<ME>	1.234.567.890,234
		12.345.678,012	<ME>	1.234.567.890,234
		Quantity TBD by Bidder	Total cost only	Unit price only
	TC before reduction	12.345.678,23		
	Reduction	12.345.678,23		
	TC after reduction of 2.00%	1.234.567.890,23		

Alternative representation:

11.22.33.44.5.PPPP.I	Quantity TBD by Bidder	12.345.678,012	<ME>	1.234.567.890,234	1.234.567.890,23
	From 100% to 110%	12.345.678,012	<ME>	1.234.567.890,234	1.234.567.890,23
	From 110%	12.345.678,012	<ME>	1.234.567.890,234	1.234.567.890,23
	Quantity released	12.345.678,012	<ME>	1.234.567.890,234	1.234.567.890,23
	TC before reduction	1.234.567.890,23			
	Reduction	1.234.567.890,23			
	TC after reduction of 2,00%				1.234.567.890,23
	Unit price breakdown				
	Unit price component1	1.234.567.890,234			
	Unit price component2	1.234.567.890,234			
	Unit price component3	1.234.567.890,234			
	Unit price component4	1.234.567.890,234			
	Unit price component5	1.234.567.890,234			
	Unit price component6	1.234.567.890,234			
	Quantity split				
	Text for the classification of part quantity	12.345.678,012	<ME>		
	Text for the classification of part quantity	12.345.678,012	<ME>		
Basic work item ZZ 001.0					
Alternate variant ZZ 001.1					
Provisional item with TC					
Provisional item without TC					
Summary description					
Subdescription					
Quantity to be entered by bidder					
Markup item for all preceding marked items in the BoQ category					
Markup item for all preceding items in the BoQ category					
Markup item for all listed Items					
Markup item					
Item omitted					
Assigned					
Not assigned					
Reference description					
Repeat description for 11.22.33.44.5.PPPP.I, however					
Performance as per performance description 010					
Supplement 001 approved					
	StL No. with TA and/or TB changes in case of repetition in ()				
	STLB-Bau to LB				
	Catalog				
	<Outline text ----->				
(12)	<Introduction text supplement to outlineText 'TA' conclusion text supplement				
	< Detailed text with diagrams, tables and classification and ----->				
(12)	< Introduction text supplement '.....' conclusion text supplement				
	< Detailed text with diagrams, tables and classification and ----->				
(51)	Cover assembly '.....'				
	Bidder's comments				
	These are the bidder's free comments				

7.2 Examples of Presentation of Work Item Descriptions

7.2.1 Quantity/ Quantity Unit /Unit Price/Total Cost below

Remark:

Text depicted in blue (e.g. **STLB-Bau**) is generated by the user software.

Text supplements from the client (TA) are depicted in green (**client's text supplement**).

Text depicted in red is generated by the bidder (TB) and are to be conveyed.

BoQ Breakdown 1122PPPP – Lump Sum Item

11.10. 10			
	STLB-Bau 4/2003 000		
	Provide construction site equipment for all work items listed in the work specification, utilize and remove, operative period 6 months, scaffolding with work level more than 2m above ground level to be positioned on site.		
		psch	.....

BoQ Breakdown 1122PPPP – STL-Bau with TA

11.11. 50			
	STLB-Bau 4/2003 036 TA		
	PVC floor covering without supports DIN EN 649, heterogeneous, Classification DIN EN 685 grade 22 (living area, middle class), antistatic, electrical charge in trial in accordance with DIN 54345-2 and DIN EN 1815 max. 2 kV, weighted sound reduction index VM DIN EN ISO 140-8 2dB, Resistance classification T, suitable for castors DIN EN 12529 Typ W, Fire resistance rating DIN 4102-1 category B1, Total thickness 2,5 mm, usable layer thickness 0,5 mm, in panels, marble effect, smooth surface, colour as per standard collection, affix to completely coated surface, Covering manufacture 'product details from the party issuing the invitation to bid here' or similar, Manufacture/type of adhesive 'here product details from the party issuing the invitation to bid' or similar.		
	2.220,000	m2	.....

BoQ Breakdown 1122PPPP – STL-Bau with TA

11.11. 55			
	STLB-Bau 4/2003 012 TA		
	Interior wall masonry, Limestone, DIN V 106, KS L-R, stability rating12, Apparent density class 1,6, wall thickness 17,5 cm, Mortar MG II a, height up to 2,75 m, Manufacture 'product details from the party issuing the invitation to bid here' or similar.		
	1.170,000	m2	.....

BoQ Breakdown 1122PPPP – STLB-Bau with TB

11.11. 56

	STLB-Bau 4/2003 009 TB	
	<p>Shaft base with collar (SU-M), precast concrete/reinforced concrete part DIN 4034-1, circular, DN 1200, exterior walls with additional corrosion protection in accordance with individual description, joint seal with elastomeric sealing ring DIN EN 681-1 and DIN 4060 as compression seal, sealing rings delivered separately, on site mounted on spigot end, even distribution of stress over the bearing joints due to cement mortar MG III, climbing apparatus with iron footrests DIN V 19555, aluminium, plastic coating, step width 250 mm, straight channel, channel lining and step concrete C 35/45, access at head height, connecting pieces with collar for articulated connection of pipes, access for stonework pipe, DN 150, connection system C, outflow for stonework pipe , DN 150, connection system C, execution in accordance with individual description,</p> <p>Manufacture/type</p> <p>..... ,</p> <p>to be entered by bidder.</p>	
	2 St	.....

BoQ Breakdown 1122334455PPPP (14 characters) – StL-No. with TA and TB

11.22.33.44.55.6666

	StL-Nr 95 036/215 01 11 11 11 TA TB	
	PVC floor covering without supports DIN 16 951, homogeneous,	
(11)	Thickness in mm '3,5',	
	in panels, one color, smooth surface, color as per sample from owner, affix to completely coated surface.	
(42)	Covering manufacture'	
'	
	If not otherwise stated, to be entered by the bidder	
(51)	Manufacture/type of adhesive ' <u>Freudenberg</u> '	
	Or similar,	
(52)	Manufacture '.....'	
	To be entered by the bidder	
	170,000 m2	.....

Representation of previous item as XML extract

```

<Item ID="gaebAVA_13" RNoPart="6666">
<Qty>170.000</Qty>
<QU>m2</QU>
<Description>
<CompleteText>
<ComplTSA>Yes</ComplTSA>
<ComplTSB>Yes</ComplTSB>
<DetailTxt>
<Text><span> PVC floor covering without supports DIN 16 951, homogeneous,<br/></span></Text>

<TextComplement MarkLbl="11" Kind="Owner">
<ComplCaption><span>thickness in mm</span></ComplCaption>
<ComplBody><span style="text-decoration:underline"> '3,5'</span></ComplBody>
<ComplTail><span></span></ComplTail></TextComplement>
<Text><span>in panels,</span><br/>
<span>one color,</span><br/>
<span>smooth surface,</span><br/>
<span>color as per sample from owner,</span><br/>
<span>affix to completely coated surface.</span></Text>

<TextComplement MarkLbl="42" Kind="Bidder" Empty="Yes">
<ComplCaption><span> covering manufacture</span></ComplCaption>
<ComplBody><span>'</span><br/>
<br/>
<span>.....'</span></ComplBody>
<ComplTail><br/><span>if not otherwise stated, to be entered by bidder</span><br/></ComplTail>
</TextComplement>

<TextComplement MarkLbl="51" Kind="Owner">
<ComplCaption><span>manufacture/type of adhesive </span></ComplCaption>
<ComplBody><span style="text-decoration:underline">'Freudenberg'</span></ComplBody>
<ComplTail><br/><span>or similar,</span><br/></ComplTail>
</TextComplement>

<TextComplement MarkLbl="52" Kind="Bidder" Empty="Yes">
<ComplCaption><span>manufacture </span></ComplCaption>
<ComplBody><span>'.....'</span></ComplBody>
<ComplTail><br/><span>to be entered by bidder</span><br/></ComplTail>
</TextComplement>

</DetailTxt>
</CompleteText>
</Description>

```

</Item>

The party issuing the invitation to bid is responsible for the layout of the detailed text. It must be ensured that the exchange phase specifications are not altered.

21.10. 110**Provisional item without total cost**

	single pane window pinewood, glazed, one adjustable component, rotating casement with guide rails for blinds, measurements 1010 x 1010 mm	
	17,000	St
	.....	Unit price only

21.10. 120**Provisional item with total cost**

	StL-No. 99 051/361 02 42 14 32 TA	
	Cable construction shaft from prefabricated reinforced concrete with ground plate, bridge rating 12 DIN 1072, cover classification B DIN 1229/DIN EN 124, size V – accessible dimensions L/B 1450 mm x 800 mm, accessible height 820 mm, provided by the owner, install, including earthworks, excessive takeoff level to one side. Upper component with 3 covers.	
(51)	Execution in accordance with <u>“Schachtaufnahmeblatt” (shaft information sheet) Nr. 14.</u>	
	17,000	St
	.....	Unit price only

21.10. 130**Basic work item ZZ 010.0**

	StL-No. 99 051/361 02 42 14 32 TA	
	Cable construction shaft from prefabricated reinforced concrete with ground plate, B bridge rating 12 DIN 1072, cover classification B DIN 1229/DIN EN 124, size V – accessible dimensions L/B 1450 mm x 800 mm, accessible height 820 mm, provided by the owner, install, including earthworks, excessive takeoff level to one side. Upper component with 3 covers.	
(51)	Execution in accordance with <u>“Schachtaufnahmeblatt” (shaft information sheet) Nr. 14.</u>	
	10,000	St

21.10. 140

ZZ 010.1 Alternate variant for ZZ 010.0

	StL-No. 99 051/361 02 42 15 32 TA	
	Cable construction shaft from prefabricated reinforced concrete with ground plate, B bridge rating 12 DIN 1072, cover classification B DIN 1229/DIN EN 124, size V – accessible dimension L/B 1450 mm x 800 mm, accessible height 820 mm, provided by the owner, install, including earthworks, excessive takeoff store to one side. Upper component with 3 covers.	
(51)	Execution in accordance with "Schachtaufnahmeblatt" (shaft information sheet) Nr. 14.'	
	10,000 St	Unit price only

40.10. 10

Reference description

	StL-No. 96 020/400 20 20 52 21 TA	
	Slate roofing old German roofing with regular cast-iron, slope of roof over 25 to 35 degrees,	
(41)	Shuttering with initial covering of bitumen roof panels DIN 52 143 - V 13, sanded ,	
	Fasten with galvanized rods. Additional fastening with dowels from non-rusting steel DIN 17 440, material No.1.4571.	
	75,000 m2	

40.10. 20

Repeat description to 40.10. 10,

	StL-No. 96 020/400 20 (30) (53) 21	
	Slate roofing however copper roofing slope of roof over 35 to 45 degrees, striped surface area, width over 30 to 40 cm	
	50,000 m2	

The STL / STL-Bau advises a brief communication.
It can also be freely altered by the STL / STL-Bau.

40.24. 10

Reference description

	StL-No. 97 024/090 54 13 12 12 TA TB	
	Exterior wall cladding, in a thin layer with hydraulically hardened thin layer mortar DIN 18 156-2, of concrete, Exterior cladding height up to 2 m, affix/transfer to caulking, with continuous joints between wall exterior cladding and floor surface, join via elutriation with white cement mortar, joint width 2 mm,	
(52)	Manufacture/Type of tiles/boards 'to be completed by <u>the party issuing the invitation to bid</u> or similar,	
(53)	Manufacture/Type'' to be entered by bidder	
210,000 m2		.....

40.24. 11

Repeat description to 40.24. 10

	StL-No. 97 024/090 54 (23) 12 12	
	Wall exterior	
	however	
	Exterior cladding height over 2 to 3.5 m,	
25,000 m2		.....

Performance description 0010

Single pane window,
 Component aperture in building exterior cladding, wind load
 DIN EN 12210, test pressure P1 class 1 (400 Pa),
 Width total frame exterior 1010 mm,
 Height total frame exterior 1010 mm,
 type 2, 2 part vertical division, with vertically
 continuous posts, aperture type 1. tilting component,
 aperture type 2. tilting component
 softwood frame, apparent density min. 0.35 g/m³ with,
 max. 15 % wood moisture, wood type pine
 cant design solid wood, frame surface
 primed, window handle of non-rusting
 steel, matt, transparent bracing, as
 double glazing, wall assembly in joint area
 single wall,
 with blunt inset, proof of lack of condensation and
 mould is not necessary,
 interior joint in accordance with supplementary sheet 2,
 Attachment with window screws, seals exterior level
 with impregnated foam plastic sealing strips
 DIN 18542, seals interior level with sprayable
 sealant (formation 15%), completely
 fill with polyurethane foam.

50.34. 11

Execution in accordance with execution description 0010

Single pane window
 Width total frame exterior 1010 mm,
 Height total frame exterior 1010 mm.

8,00 St

50.34. 12

Reference description

Execution in accordance with execution description 0010

Single pane window
 Width total frame exterior 2010 mm,
 Height total frame exterior 1510 mm.

15,00 St

50.34. 13

Repeat description to Ref. No. 50.34. 12

Single pane window
 however
 Height total frame exterior 1010 mm.

30,00 St

50.34. 14

Repeat description to Ref. No. OZ 50.34. 12

Single pane window however Width total frame exterior 2260 mm, Height total frame exterior 2010 mm, Driving rain impermeability DIN EN 12208, class 6a (100 Pa)	
12,00 St	

50.34. 15

Repeat description to Ref. No. 50.34. 12

Single pane window however Driving rain impermeability DIN EN 12208, class 6a (100 Pa)	
17,00 St	

70.10. 10

This is the detailed text: Representation with unit price components	
Breakdown of the unit price	
Wage	12,66
Material	23,51
Equipment	1,27
Subcontractor	5,34
Maintenance	2,00
Disassembly	0,87
1.000,000 St	45,65
	45.650,00

70.10. 40

This is the detailed text: Item with 2.00 % reduction on the total cost With additional division of the UP.	
Breakdown of the unit price	
Wage	12,66
Material	23,51
Equipment	1,27
Subcontractor	5,34
Maintenance	2,00
Disassembly	0,87
1.000,000 St	45,65
TC before reduction	45.650,00
Reduction	901,30
TC after reduction of 2,00 %	44.773,35

70.10. 50

This is the detailed text: Free item with unit price division and Quantity split				
Quantity split				
Part quantity for KST 4711	300,000	St		
Part quantity for KST 0815	700,000	St		
Breakdown of the unit price				
	Wage	12,66		
	Material	23,51		
	Equipment	1,27		
	Subcontractor	5,34		
	Maintenance	2,00		
	Disassembly	0,87		
	1.000,000	St	45,65	45.650,00

70.10. 60

This is the detailed text: Free item with unit price division and quantity split in percentages.				
Part quantity for KST 4711	30,00	%		
Part quantity for KST 0815	70,00	%		
Breakdown of the unit price				
	Wage	12,66		
	Material	23,51		
	Equipment	1,27		
	Subcontractor	5,34		
	Maintenance	2,00		
	Disassembly	0,87		
	1.000,000	St	45,65	45.650,00

70.10. 70

PVC floor covering without supports DIN 16 951, homogenous, Thickness 3.5 mm, in panels, one color, polished surface, Color as per sample from owner, affix to completely coated surface. Covering manufacture'				
.....'				

	to be entered by bidder	
	5.170,000 m2	.....

11.11. 50

	This is the detailed text: This is a free item with bidder's comments.	
	Bidder's comments:	
	These are the bidder's free comments.	
	5.170,000 m2	.....

33.33. 10**Item to be marked up**

	This is the detailed text: This is a free item.	
	170,000 m	.....

33.33. 20

	This is the detailed text: This is a free item.	
	170,000 m	.....

33.33. 30**Item to be marked up**

	This is the detailed text: This is a free item.	
	170,000 m	.....

33.33. 50**Markup item on all preceding marked items in the BoQ category**

	This is the text section: Markup item on all preceding items in the BoQ category.	
	Markup of 2.00 % on the total cost of 100.000,00 =	2.000,00

33.33. 51**Markup item on all preceding items in the BoQ category**

	This is the text section: Markup item on all preceding items in the BoQ category.	
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	Markup of 2.00 % on the total cost of 80.000,00 =	1.600,00

33.33. 52

	33.33. 10	100,000
	33.33. 30	150,000
Markup item on all listed items		
	This is the text section: Markup item on all listed items.	
	Markup of 2.00 % on the total cost of 40.000,00 =	800,00

77.10. 10

Summary description

	PVC floor covering without supports DIN 16 951, homogenous, Thickness 3.5 mm, in panels, one color, polished surface, Color as per sample from owner, affix to completely coated surface.	
	5.170,000 m2	.....

Subdescription 01

	This is the detailed text: Free subdescription text	
	1.000,000 St	.....

Subdescription 02

	This is the detailed text: Free subdescription text	
	50,000 m2	

7.2.2 Quantity/ Quantity Unit /Unit Price/Total Cost above

BoQ Breakdown 1122PPPP – Lump sum item

11.10. 10		psch	.....
	STLB-Bau 4/2003 000		
	Provide construction site equipment for all work items listed in the work specification, utilize and remove, operative period 6 months, scaffolding with work level more than 2m above ground level to be positioned on site.		

11.11. 50		2.220,000 m2	.....	.....
	STLB-Bau 4/2003 036 TA			
	PVC floor covering without supports DIN EN 649, heterogeneous, Classification DIN EN 685 grade 22 (living area, middle class), antistatic, electrical charge in trial in accordance with DIN 54345-2 and DIN EN 1815 max. 2 kV, weighted sound reduction index VM DIN EN ISO 140-8 2dB, Resistance classification T, suitable for castors DIN EN 12529 Typ W, Fire resistance rating DIN 4102-1 category B1, Total thickness 2,5 mm, usable layer thickness 0,5 mm, in panels, marble effect, smooth surface, colour as per standard collection, affix to completely coated surface, Covering manufacture 'product details from the party issuing the invitation to bid here' or similar, Manufacture/type of adhesive 'product details from the party issuing the invitation to bid here' or similar.			

11.11. 55		5.170,000 m2	.....	.....
	STLB-Bau 4/2003 012 TA			
	Interior wall masonry, Limestone, DIN V 106, KS L-R, St 12, stability rating Apparent density class 1.6, masonry thickness 17.5 cm, Mortar MG II a, height up to 2.75 m, Manufacture 'product details from the party issuing the invitation to bid here' or similar.			

11.11. 56		2 St	.....	.....
	STLB-Bau 4/2003 009 TB			
	Shaft base with collar (SU-M), precast concrete/reinforced concrete part DIN 4034-1, circular, DN 1200, exterior walls with additional corrosion protection in accordance with individual description, joint seal with elastomeric sealing ring DIN EN 681-1 and DIN 4060 as compression seal, sealing rings delivered separately, on site mounted on spigot end, even distribution of stress over the bearing joints due to cement mortar MG III, climbing apparatus with iron footrests DIN V 19555, aluminium, plastic coating, step width 250 mm, straight channel, channel lining and step concrete C 35/45, access at head height, connecting pieces with collar for articulated connection of pipes,			

	access for stonework pipe, DN 150, connection system C, outflow for stonework pipe , DN 150, connection system C, execution in accordance with individual description, Manufacture/type , to be entered by bidder. or similar.	
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70.10. 10	100,000	St	45,65	45.650,00
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Breakdown of unit price			
	Wage	12,66	
	Material	23,51	
	Equipment	1,27	
	Subcontractor	5,34	
	Maintenance	2,00	
	Disassembly	0,87	
This is the text section: Representation with unit price components			

70.10. 40	1.000,000	St	45,65
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	TC before reduction	45.650,00	
	Reduction	901,30	
	TC after reduction of 2.00 %		44.773,35
	Wage	12,66	
	Material	23,51	
	Equipment	1,27	
	Subcontractor	5,34	
	Maintenance	2,00	
	Disassembly	0,87	
This is the text section: Item with 2.00 % reduction on the total cost.			

70.10. 50	1.000,000	St	45,65	45.650,00
Breakdown of the unit price				
	Wage		12,66	
	Material		23,51	
	Equipment		1,27	
	Subcontractor		5,34	
	Maintenance		2,00	
	Disassembly		0,87	
Quantity split				
	Part quantity for KST 4711	300,000	St	
	Part quantity for KST 0815	700,000	St	
This is the detailed text section: Free item with unit price division and Quantity split.				

70.10. 60	1.000,000	St	45,65	45.650,00
Breakdown of the unit price				
	Wage		12,66	
	Material		23,51	
	Equipment		1,27	
	Subcontractor		5,34	
	Maintenance		2,00	
	Disassembly		0,87	
Quantity split in %				
	Part quantity for KST 4711	30,00 %		
	Part quantity for KST 0815	70,00 %		
This is the detailed text section: Free item with unit price division and Quantity split in percentages.				

70.10. 70	2.170,000	m2	.....	.....
PVC floor covering without supports DIN 16 951, homogenous, Thickness 3.5 mm, in panels, one color, polished surface, Color as per sample from owner, affix to completely coated surface. Covering manufacture'' to be entered by bidder.				

11.11. 50	5.170,000	m2	.....	.....
This is the detailed text section: This is a free item with bidder's comments.				
Bidder's comments:				
These are the bidder's free comments				

33.33. 50				
Markup of 2.00 % on the total cost of 100.000,00 =				2.000,00
Markup item on all preceding marked items in the BoQ category				
This is the text section: Markup item on all items in the BoQ category.				

33.33. 51				
Markup of 2.00 % on the total cost of 80.000,00 =				1.600,00
Markup item on all preceding marked items in the BoQ category				
This is the text section: Markup item on all preceding items in the BoQ category.				

33.33. 52				
Markup of 2.00 % on the total cost of 40.000,00 =				800,00
33.33. 10 100,000				
33.33. 30 150,000				
Markup item on all listed items				
This is the text section: Markup item on all listed items				

77.10. 10	5.170,000	m2	.....	.....
Summary description				
PVC floor covering without supports DIN 16 951, homogenous, Thickness 3.5 mm, in panels, one color, polished surface, Color as per sample from owner, affix to completely coated surface. Covering manufacture				

Subdescription 01

		1.000,000	St	
	This is the detailed text section: Free subdescription text				

Subdescription 02

		50,000	m2		
	This is the detailed text section: Free subdescription text				

Remarks

	STLB-Bau 4/2003 099 TA	
	The client provides containers and chutes for the removal of building debris for a period of 3 weeks free of charge. Rubble/debris is removed by the client, Storage/collection point 'client's entry here'	

BoQ Category**21.10****Basic section ZZV 010.0**

	This is a free section text: Section as basic section.	

21.20**Alternative section ZZV 010.1**

	This is a free section text: Section as alternative section.	

7.3 Glossary

Term	Explanation
Alternate Work Item	A work item listed in the bill of quantities as an alternate variant to a basic work item. Alternate work items are specially marked in the BoQ. Equivalent to the optional work item.
BAB	Bid call, award and billing of construction work
Basic Work Item	Work item description for which an alternate variant is provided in the bill of quantities. Basic work items are identified as such in the BoQ.
Bidder	Contractor who has submitted a bid for performing the required construction work to the client.
Bill of Quantities (BoQ)	Clear, exhaustive and complete description of the construction work broken down into work items.
BMEcat	Standardized exchange format for product data catalogs between suppliers and acquiring organizations. Suppliers are able to organize the product exchange for the transfer of complete product data and current information (prices etc.) This format forms the basis for e-commerce and the automatic processing of documents with openTRANS.
BoQ Category	Grouping of all the work items in a bill of quantities that have the same characteristics.
Client (OWN)	Same as the "owner". One commissioning construction work for his or her own account. The VOB makes reference to the "client" even before a contract is actually awarded.
Common Procurement Vocabulary (CPV)	Common vocabulary used for describing the subject matter of contracts when publishing bid calls throughout the EU. Use of the standard terminology of the CPV is intended to increase the transparency and efficiency of international procurement markets.
Construction Contractor	Contractor who is able to perform construction work independently as per VOB Part A § 1.1.
Contractor (CTR)	Bidder who has been awarded the contract for performing the necessary construction work. The VOB makes reference to the "contractor" even before a contract is actually awarded.
Detailed Text	Complete description of a work item.
Eventual Work Item	Equivalent to the provisional work item.
GAEB	Gemeinsamer Ausschuss Elektronik im Bauwesen (Joint Committee on Information Technology in the Construction Industry).
GAEB-VB	Descriptions of procedures for electronic billing of construction work issued by the Joint Committee on Information Technology in the Construction Industry (GAEB).
Hierarchical Levels	Means of organizing work items with different characteristics.

Term	Explanation
ILN Number	International location numbering assigned by the Centrale für Coorganisation GmbH, 50772 Cologne. ILNs enable the efficient exchange of information between companies and are required for delivering goods, hardcopy information and electronic data to the appropriate location or address. They assist in identifying the addresses of companies, subsidiaries, branches and regional offices. ILNs can also uniquely identify process-oriented units within a company, such as warehouses, departments, production lines, points of delivery, network nodes and other communication nodes. At the same time, the numbers are used in all applications as codes for accessing the master data stored in the computer system.
Item	Work Item
Lot (L)	The portion of an overall construction project contained in a contract and required for building, maintaining, modifying or removing a structure.
Lot Group	When construction work is awarded, lots can be combined in lot groups based on technical or economic considerations.
Maintenance	Measures for maintaining and restoring the specified condition and for determining and evaluating the actual condition of real estate and technical equipment (DIN 31 051).
Markup Item	Work item that enables a percentage-based markup to be charged on individual items, whole BoQ categories or item subquantities. Markup items are identified as such in the BoQ.
Master Agreement	Term contract obligating the contractor to be on call for a specific period of time to perform defined work items contained in individual contracts under the conditions defined in the master agreement.
Master Catalog (STLK)	A collection of standard texts used for describing construction work related to road and bridge building or hydraulics.
Master Number (StL No.)	Text code number from the StLB and STLK that precedes the work item in the BoQ.
Master Specifications for Construction (StLB)	A collection of standard texts used for describing items of construction work and broken down into work categories. It includes StLB, STLB-Bau, StLB (BiB) and StLB (Z).
openTRANS	Exchange format for homogenous inter-company e-commerce electronic documents in the logistics field. Building on the BMEcat standard for the electronic exchange of products, standardized documents such as bid, contract, contract change, delivery notice, invoice and others can be exchanged between business partners.
Optional item	Equivalent to the alternate variant
Outline Text	Abridged description of a work item.
Part Lot	A lot combining all the work items from an overall construction project that relate to a particular location.

Term	Explanation
Performance Description	A detailed description that precedes work items. The associated work items contain the supplementary variable text that completes the work item description. Performance descriptions are specially identified as such in the BoQ.
Performance Program	Describes the construction work when, in a departure from the norm, bids are solicited for both the performance and design of work items. The performance description comprises a description of the construction project (see VOB/A § 9 No. 11 Para. 1).
Prospective bidder / Competitor	Contractor who has expressed their interest in performing the required construction work but has not yet submitted a bid.
Provisional Work Item	Work item to be performed only if necessary. Provisional work items are specially identified as such in the BoQ. Equivalent to the eventual work item.
Quantity TBD by Bidder	Placeholder for quantity information that must be entered by the bidder, such as the steel quantities used by the bidder for prestressing. Identified in the BoQ by "Quantity to Be Entered by Bidder".
REB	Guidelines for electronic billing of construction work
Reference Description	A work item referred to in the subsequent section of the BoQ.
Reference No. (Ref. No.)	Unique, incremented number identifying of work items in the BoQ.
Remarks	Standardized or non-standardized descriptions that must be considered when quoting prices.
Repair	Measures for restoring the specified condition of real estate and technical equipment (DIN 31 051).
Repeat Description	Work item that refers to a reference description. Repeat descriptions are identified as such in the BoQ.
Specification	Clear, exhaustive and complete description of the construction project.
StLB	Master Specifications for Construction in the T1 to T5 System.
STLB-Bau	Software module accessed from the bidding program that can be used to compile standardized descriptions of work items in a BoQ on the basis of individual descriptive characteristics. Because of its internal logic, STLB-Bau can generate a large number of work items from a limited number of text modules, thus aiding users in generating texts that conform to the VOB.
STLB-BauZ	Master Specifications for Construction - Term Contract Work (term contract work in the bidding up and bidding down procedure).
Subcontractor	Company that performs construction work on behalf of a contractor.
Subdescription (SD)	Part of an especially extensive description of a work item that is prefaced by a summary description (see also "Summary description").

Term	Explanation
Summary Description	In the case of more exhaustive descriptions, a work item can comprise a summary description and one or more subdescriptions.
Text Supplement (TS) - by author (TA) - by bidder (TB)	Texts that supplement and complete the general, standardized texts describing a work item. They are inserted either by the author of the BoQ, by the bidder, or, optionally, by the author or bidder.
Trade	Branch of the construction trade.
Trade Lot	A lot combining all the work items from an overall construction project belonging to the same trade.
VOB	Construction contract procedures
VOL	Award rules for work other than building and construction
Work Category (WCtg)	A collection of standard texts related to a specific area of construction work. Categorization basically corresponds to the breakdown in the VOB, Part C.
Work Category Number (WCtg No.)	Three-digit number identifying the work category.
Work Item	Work considered to be a homogeneous unit based on its technical characteristics and for pricing purposes (VOB/A § 9 No. 9).

7.4 Contacts

Address	Service
<p>Gemeinsamer Ausschuss Elektronik im Bauwesen (GAEB) Office: Bundesamt für Bauwesen und Raumordnung (BBR) im Geschäftsbereich des Bundesministeriums für Verkehr, Bau und Stadtentwicklung Deichmanns Aue 31-37 53179 Bonn</p> <p>Tel : (01888) 401-0 (switchboard) (01888) 401-1524 (extension) Fax : (01888) 401-1529</p> <p>E-mail: gaeb@bbr.bund.de Internet: www.gaeb.de</p> <p>Tel : (02421 488-287) Fax : (02421 488-299)</p> <p>E-mail: Herbert.Rheinberg@BLB.NRW.de</p> <p>DIN Deutsches Institut für Normung e.V. Burggrafenstraße 6 10787 Berlin</p> <p>Tel : (030) 2601-2188 Fax : (030) 2601-42188</p> <p>E-mail: gaeb@DIN.de</p> <p>Beuth Verlag GmbH Burggrafenstraße 6 10787 Berlin</p> <p>Tel : (030) 2601-2668 Fax : (030) 2601-1268</p> <p>Internet: www.beuth.de</p> <p>Internet: www.gaeb.de under Infos – Codistributors STL-Bau</p>	<p>Information on:</p> <ul style="list-style-type: none"> - creation and development of the Master Specification Systems (STLB-Bau, STLB-BauZ) - GAEB guidelines (e.g. data exchange, procedural descriptions, explanatory leaflets) - Receives reports from users and suggestions for improvement - creation and development of Master Specification System for Construction - Term Contract Work (STLB-BauZ) - Publishes the Master Specifications for Construction - Distributes Master Specifications (STLB-Bau, StLB, StLB (Z) and StLB-Bau (Z)) and other GAEB guidelines in hardcopy and electronic form - Contact addresses for questions on the implementation of the interface.

Address	Service
<p>Bundesamt für Bauwesen und Raumordnung (BBR) im Geschäftsbereich des Bundesministeriums für Verkehr, Bau und Stadtentwicklung Deichmanns Aue 31-37 53179 Bonn</p> <p>Tel : (01888) 401-0 (switchboard) (01888) 401-1376 (extension) Fax : (01888) 401-1223</p> <p>Deutscher Vergabe- und Vertragsausschuss für Bauleistungen (DVA) Geschäftsstelle beim Referat BS 11 des Bundesministeriums für Verkehr, Bau- und Stadtentwicklung Krausenstraße 17-20 10117 Berlin</p> <p>Tel: (030) 2008-7115 / 7113 Fax: (030) 2008-7595</p> <p>E-mail: dva@bmvbw.bund.de</p> <p>DB ProjektBau GmbH NL West, PZ Köln Johannisstraße 64 50668 Köln</p> <p>Tel : (0221) 1413221 Fax : (0221) 1413227</p> <p>E-mail: gbi@bahn.de</p> <p>Forschungsgesellschaft für Straßen- und Verkehrswesen Hauptgeschäftsstelle: Konrad-Adenauer-Straße 13 50996 Köln</p> <p>Tel : (0221) 935830 Fax : (0221) 9358373</p> <p>E-mail: koeln@fgsv.de</p>	<p>Project management of the pilot project</p> <ul style="list-style-type: none"> - "e-Vergabe des Bundes" (German electronic award procedure) - Publishes Award and Contract Regulations for the Construction Industry (VOB) - Distributes work categories 482 and 486 in hardcopy and electronic form - Publishes the Master Catalog for Road and Bridge Building (STLK)

Address	Service
<p>FGSV Verlag GmbH Wesseling Straße 17 50999 Köln</p> <p>Tel : 02236-3846-3 Fax: 02236-3846-40</p> <p>E-mail: info@fgsv-verlag.de</p>	<ul style="list-style-type: none"> - Distributes work categories 101-135 and the REB Guidelines in hardcopy and electronic form.
<p>Bundesanstalt für Wasserbau Am Ehrenberg 8 98693 Ilmenau</p> <p>Tel: 03677-669-0 Fax: 03677-669.3333</p>	<ul style="list-style-type: none"> - Distributes work categories 202-230 (Master Specifications Catalog for Hydraulics) in electronic form
<p>Drucksachenstelle bei der Wasser- und Schifffahrtsdirektion Mitte Am Waterloopplatz 5 30169 Hannover</p> <p>Tel.: 0511-9115-0 Fax: 0511-9115-495</p>	<ul style="list-style-type: none"> - Distributes work categories 202-230 (Master Specifications Catalog for Hydraulics) in hard copy
<p>Bundesverband Bausoftware e.V. - BVBS - Hölderlinstraße 38 71287 Weissach</p> <p>Tel : (07044) 930404 Fax : (07044) 930406</p> <p>E-mail: mn@bvbs.de Internet: www.bvbs.de</p>	<p>Provides information on construction software houses</p> <ul style="list-style-type: none"> - certification of STLB-Bau-Schnittstelle - certification procedure GAEB DA XML - coordination GAEB DA XML / openTRANS / BMEcat