METHOD AND SYSTEM FOR FACILITATING A DEAL BETWEEN A CONSTRUCTION CONTRACTOR AND A CONSTRUCTION MATERIAL SUPPLIER

FIELD OF THE INVENTION

The present invention relates generally to a method and system for facilitating a deal between a construction contractor and a supplier of construction material, and particularly, to a method and system for facilitating a deal between a construction contractor and a steel product supplier.

BACKGROUND OF THE INVENTION

Construction materials such as such as steel bars are critical in the construction industry as they are one of the fundamental components of any construction project. A construction project is usually managed by a construction contractor. Typically, a construction contractor is responsible for buying construction materials from various suppliers. A supplier may supply the material only or also provide the service for fabricating the product per the need of the specific part of a project for which the product order is intended. The contractor provides the specification of the products needed which include type of metal, size, shape, quantity, etc. The contractor also provides a deadline for which the construction products must be delivered to a specified site.

For relatively large projects, not all quantities of the products needed for the entire project are requested by the contractor to be delivered at one time. Typically, a schedule of delivery is set such that a specified set of goods are delivered in a manner which corresponds to the schedule of the project. A project to build a large condominium complex, for instance, may base the

materials delivery schedule on the completion of each floor of the building. It is a customary practice for the contractor to be paid on an incremental basis as the project is being completed. Similarly, the supplier is also paid as and when the deliveries are made and after the documentation of the deliveries are properly verified by the contractor. Currently, there is no systematic method or system for verifying the deliveries. Hence, it is not unusual for the contractor to have long delays in making payments to the supplier, even when the deliveries have been correctly and promptly made.

It is critical to the construction project that the supplier deliver the construction materials per the contractor's specification. If a wrong type of product not suitable for the project is inadvertently delivered, the product must be sent back and the correct product must be redelivered. Because the supplier of the prefabricated products always requires some time to fabricate the goods per the customer's specification, a wrong delivery will inevitably cause delay to the entire project. Meeting the deadline of any order is absolutely critical if the construction project is to meet its scheduled completion date. Unfortunately, it is all too common in the industry to have many delays due to the failure of the supplier to deliver the ordered good in a timely manner. The reasons for the failure are many, not all of which are the fault of the supplier alone.

A wrong delivery can adversely affect the supplier as well. Aside from the obvious downside in damaging the supplier's general reputation, a wrong delivery can cause great financial damage in certain instances. For example, in some cases, a wrongly-delivered product may still be used by the contractor if the specification of the delivered good exceeds what was required for the project. For instance, the wrongly-delivered steel bars may be thicker, and hence, stronger than what was required. In such instances, the contractor may

still choose to accept the delivery so as not to delay the project, but without offering to pay additional fee for the more expensive product (a thicker bar requires more steel, and hence, is more expensive than a thinner bar of comparable quality). After all, it was not what the contractor had ordered. Inevitably, the supplier must agree. Because steel product trade (as well as other construction material trade) is a very low margin business, such a concession can actually lead to a net loss for that transaction.

Currently, the method of transacting a deal between the contractor and the supplier can broadly be viewed as being manual. Although each transaction is usually properly documented, there is no systematic way of documenting each transaction in relation to the overall construction project. Moreover, the process of tracing the documents can be a tedious and time-consuming process, and so information such as consolidated quantities is hard to come by. Many of the delays in delivery of ordered goods and other problems, some of which have been mentioned above, can be traced one way or another to the current method of transacting and documenting a deal between the contractor.

OBJECT OF THE INVENTION

It is therefore an object of the present invention to overcome the shortcomings to the prior method described above.

SUMMARY OF THE INVENTION

The preferred embodiment of the present invention allows the deal between the contractor and the supplier to be facilitated over the Internet using

the World Wide Web (or "Web") via the contractor system, or client system, and the steel product supplier system, or the server system. The server system includes a server engine, a client ID/customer/password table, various Web pages, a customer database, a order database, a consolidated quantities database, and a progress database. The server engine receives HTTP requests to access Web pages identified by URLs and provides the Web pages to the client system. The client ID/customer/password table contains the mapping of the client ID to the correct contractor and its corresponding password. The customer database contains the particulars of all the contractors being serviced by the supplier. The order database contains the order information for each of the contractors including the updated status of each the deliveries. There will also be options to allow the contractor to make changes to the orders provided that the changes are made within the specified period. The consolidated quantities database contains the consolidated quantities of all of the orders. The progress database contains the project schedules and the delivery schedules of the various construction projects.

The client system includes a browser which is used to access the Web pages of the server system. By accessing the various Web pages, the contractor is able to access up-to-date status of the orders, the progress of the project and deliveries. Each contractor is assigned a unique client ID and a password which are needed to access the product supplier's Website. In the preferred embodiment, the client system also includes a project management system which the contractor uses to create and modify project schedules. In the preferred embodiment, the project management system of the client's system is linked to the server system such that the project schedules are directly imported into the progress database of the server system to provide a up-to-date information about the progress of the project. By linking the server

system with the project management system of the client's system, the supplier is able to obtain all of the necessary project schedule information including any modification which occur during the duration of the project.

Through the communication network, the contractor is able to obtain various valuable and up-to-date information from through the Web pages provided through the supplier Website. To access information from the server system, the contractor accesses the homepage of the server system's Website and enters its UserID and Password. Once the correct UserID and Password are entered, the contractor is able to access, among others, the order status of any delivery and also the progress of the project.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a symbolic diagram illustrating the relationship among the various parties involved in a construction project.

FIG. 2 is a block diagram illustrating the preferred embodiment of the present invention.

FIG. 3 shows the server system's Web page where the contractor can enter its UserID an Password to access server system's Web pages.

FIG. 4a and FIG. 4b show the server system's order status Web pages.

FIG. 5 show the server system's progress Web pages.

FIG. 6 show the server system's consolidated quantity report Web page.

FIG. 7 is a block diagram illustrating the alternative embodiment of the present invention

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 illustrates a diagram which depicts the relationship among the main parties involved in a construction project. In order to provide a clear description of the preferred embodiment of the present invention, references will be made to supplier of steel products rather than referring to a supplier of construction materials in general. However, it should be understood, the reference to steel products is illustrative only, and should not be taken as a limitation to the present invention.

Referring to FIG. 1, typically, a construction project is initiated and funded by a land developer 5. In preparation for the project, the land developer hires a team of consulting engineers 7, architects 9, and quantity surveyors 11. The main role of the consulting engineers 7 is to design the structure and generate a set of structural drawings for the project. The main role of the architects is to generate a set of architectural drawings for the project. The main role of the surveyors is to survey the land and also to quantify the project.

The structural and architectural drawings are then provided to various contractors who tenders for the project through the quantity surveyors. The developer 5 then chooses the contractor based on the submitted tenders and other factors. The chosen contractor 13 then coordinates the construction of the

project by hiring various suppliers of structural goods such as the steel product supplier 15, concrete supplier 17, and the form work supplier 19. The contractor 13 also may hire various sub-contractors 21 to install the materials delivered who may in turn hire additional sub-contractors 23 of its own.

The present invention is a method and system for facilitating a deal between the contractor 13 and steel supplier 15 or other trade material supplier in a manner which helps to avoid the delays in the delivery of steel products or other construction products by the supplier 15 and the delays in payment by the contractor 13.

The present invention helps to avoid the delays in the deliveries by providing a mechanism for the steel product supplier to be informed in advance of many of the contingencies that may contribute to the delays. The sources for these delay-causing contingencies are many which shall be explained.

As alluded to above, on a construction project, the delivery schedule of the steel products is largely determined by the schedule of project. The contractor 13 relies on the structural and architectural drawings and experience to set the project schedule. The contractor typically informs the supplier 15 of both the project schedule and the delivery schedule. The supplier correspondingly relies on the schedules provided by the contractor 13 to provide and fabricate the steel products and to make the deliveries.

The steel supplier 15 usually supplies to many projects, and hence, the delivery schedule provided by the contractor 13 in one particular project is one of many that the supplier must follow. Because each delivery requires allocation of resources which are limited, it is imperative that the supplier plan ahead for each of the deliveries. The supplier's ability to deliver the ordered products is determined by the availability of three main factors: raw material,

machine capacity, and manpower. The raw material, e.g., steel bars, are obviously required before the product can be made. But even if the material is available, sufficient machine capacity and manpower are required to fabricate the products, which entails shaping the material to conform to the contractor's specification. Therefore, the steel product suppliers in general have certain pre-determined lead time for any deliveries to be made. When the supplier 15 accepts a delivery schedule from a contractor, it plans for the delivery taking into account the lead time for each delivery to be made. In calculating the lead time, it is important for the supplier 13 to take into account the deliveries to be made for the other projects as well.

The deliveries can usually be made without any problems so long as the contractor 13 keeps to the original delivery schedule, or informs the supplier 15 of any changes. The changes in the original schedule can come about for many reasons. For instance, one common reason is a change initiated by the developer where it wants to make modifications to the original structural drawings. In other instances, the changes may come about due to an error in the original drawings which are only later discovered. The changes can come from the contractor 13 as well where the change is caused by a delay in work done by the sub-contractors on site, or other contingencies not within the control of the contractor such as bad weather.

The current method which can be deemed as "manual" does not adequately address the situations where changes are made to the original schedule. Often times, the supplier is not informed of the changes in the plan, or are not informed until it is very late. Even when the information may have been relayed to the supplier, it may be processed incorrectly by the supplier due to absence of any system for handling such issues.

The present system facilitates a deal between the contractor 13 and supplier 15 in a manner which precisely tracks the original schedule as well as the various changes that may come about during the duration of the project, and which ensures that all of the parties are well informed. It does so partly by providing the contractor with real-time data on delivery status, project status, and consolidated quantities.

FIG. 2 is a block diagram illustrating the preferred embodiment of the present invention. This embodiment allows the deal between the contractor 13 and the supplier 15 to be facilitated over the Internet using the World Wide Web (or "Web") via the contractor system 30, or client system, and the steel product supplier system 40, or the server system. The server system 40 includes a server engine 41, a client ID/customer/password table 45, various Web pages 43, a customer database 47, a order database 49, a consolidated quantities database, and a progress database 51. The server engine receives HTTP requests to access Web pages identified by URLs and provides the Web pages to the client system 30. The client ID/customer/password table 45 contains the mapping of the client ID to the correct contractor and its corresponding password. The customer database 47 contains the particulars of all the contractors being serviced by the supplier 15. The order database 49 contains the order information for each of the contractors including the updated status of each the deliveries. There will also be options to allow the contractor 13 to make changes to the orders provided that the changes are made within the specified period. The consolidated quantities database 50 contains the consolidated quantities of all of the orders. The progress database 51 contains the project schedules and the delivery schedules of the various construction projects.

The client system 30 includes a browser 33 which is used to access the Web pages 43 of the server system 40. By accessing the various Web pages, the contractor 13 is able to access up-to-date status of the orders, the progress of the project and deliveries. Each contractor is assigned a unique client ID and a password which are needed to access the product supplier's Website. In the preferred embodiment, the client system 30 also includes a project management system 31 which the contractor 13 uses to create and modify project schedules. In the preferred embodiment, the project management system 31 of the client's system 30 is linked to the server system 40 such that the project schedules are directly imported into the progress database 51 of the server system 40 to provide a up-to-date information about the progress of the project. By linking the server system 40 with the project management system 31 of the client's system 30, the supplier 15 is able to obtain all of the necessary project schedule information including any modification which occur during the duration of the project.

One skilled in the art would appreciate that various communication channels may be utilised to facilitate the transaction between the contractor. For example, the local area network, wide area network, or point-to-point dial up connection may be used. Also, a server system may comprise any combination of hardware or software that can keep track of the schedules and scheduling changes. Moreover, although it is convenient to conceptually separate the various databases, e.g., customer database, it should be understood that all of the information may be stored in a single or other number of database.

Through the communication network, the contractor 15 is able to obtain various valuable and up-to-date information from through the Web pages provided through the supplier Website. To access information from the server

system 40, the contractor accesses the homepage of the server system's Website and enters its UserID and Password as shown in FIG. 3. Once the correct UserID and Password are entered, the contractor 15 is able to access, among others, the order status of any delivery and also the progress of the project.

FIG. 4a and FIG. 4b illustrate some examples of what may be shown on the order status Web pages. As shown in FIG. 4a, the order status page may graphically show the various buildings built on a particular project with each of the buildings labeled with a block number. As can be seen, block 102, 71, which does not have a building picture like the blocks 101, 73, and 105, 75, indicating that the construction has not begun. When one selects a block where the construction has begun, e.g., block 101, a Web page like the one in FIG. 4b which provides the order status for that block is shown. As shown in FIG. 4b, the order status may indicate the building level 65, i.e., "STY1" meaning story 1, the estimated total tonnage of steel 67 required for that story, and the tonnage of steel delivered 69. Other order status Web pages can provide a schedule of deliveries to be made showing the delivery date, tonnage, and type of product. It can also indicate whether each of the orders shown in the schedule can be modified. If an order is modified, then the corresponding change is made in the order database 49.

The order status pages provide great benefits to both the contractor and the supplier. By providing an up-to-date status of the order, the contractor can easily determine whether additional orders are required and make the necessary order. If on the other hand, further deliveries are not required, or other quantities or products are required, the contractor can immediately make the necessary changes. By promptly making the orders, the contractor is almost always ensured that he will receive the products that it needs. The

supplier also benefits since it is always promptly informed of the changes in the orders, so that proper preparation can be made.

Using the present system, the ordering of the steel products may be done by the contractor 13 or the supplier 15. By obtaining the project schedule of the project and necessary drawings, the supplier may suggest a delivery schedule to the contractor via the order status pages. The contractor can then choose to accept the order or make any necessary changes. Whether the initial order is prepared by the contractor 13 or the supplier 15, the order status pages allow both parties to be well informed.

FIG. 5 illustrates an example of what may be shown on a progress Web page. The progress of the project can be indicated graphically as shown in FIG. 5 as a picture of a building 90 having the number of floors corresponding to the project. The darkened portion 92 (floor 1) indicates the portion of the project which has been casted and for which the steel product delivery has been made. The lighter portion 94 (floors 2 and 3) indicates the portion of the project which has been casted, but for which the steel product delivery has not been made. The lightest portion 96 (floors 4 though 9) indicates the portion of the project which has not been casted. If any change to the original project schedule is made, e.g., a 10th floor is added, then the change would be effected on the progress page providing an update to both the contractor as well as the supplier. Adjustments in the orders can be made accordingly either by the contractor or the supplier.

FIG. 6 illustrate an example of what may be shown on the consolidated quantities report Web page. As shown in FIG. 6, the Web page shows the Job Site Code 91, the estimated tonnage 93, and delivery tonnage 95. The Job Site Code 91 is simple a code assigned to a particular job site. The estimated tonnage 93 is the total tonnage of steel required for the site. The

delivery tonnage 95 is the total tonnage delivered thus far for that site. The total tonnage delivered is the sum of the delivery tonnage 69 figures shown in FIG. 4b for that site. By providing a consolidated quantity figure for a particular site, the constructor is able to easily determine whether deliveries have been made without expending time and resources to determine the figure by manually summing up the figures from the order documents.

An alternative embodiment of the present invention is shown in FIG. 7. In the alternative embodiment, the project management system is not directly linked to the server system 101 (whether or not client system 100 is using it or not). Therefore, the project schedule information is relayed from the contractor 13 to the supplier 15 via some other means which can include e-mail, telephone, etc. Whichever manner the information is received, the supplier 15 inputs the information into the progress database 103. Any modification to the project schedule it receives from the contractor 13 is used to update the progress database 103 so that it always contains all of the up-to-date changes to the progress schedule.

The present invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The presently disclosed embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims and all changes which come within the meaning and range of equivalency of the claims are, therefore, to be embraced therein.

CLAIMS

I Claim:

1. A method of transacting a deal between a construction contractor and a construction material supplier, said construction contractor having a client system and said supplier having a server system, said method comprising:

communicably linking said server system and said client system;

providing a project schedule to said server system and storing said project schedule in a database;

determining a delivery schedule based on said project schedule and storing said delivery schedule in a database;

providing said contractor access to said project schedule and delivery schedule from said server system;

automatically updating said project schedule stored in said server system when a change is made to a project schedule made in said client system; and

updating said delivery schedule based on said change made to said project schedule.

2. The method as recited in Claim 1 wherein said server system and said client system is communicably linked through the internet.

3. The method as recited in Claim 1 wherein in said construction material is steel.

4. The method as recited in Claim 1 wherein said project schedule is developed using a scheduling management system.