LIAD
Weighing and Control Systems Ltd.

LIADSOFT
Complete production management system

The Solution for the Ready Mixed Concrete, Aggregate & Asphalt Producers

Sky Street, POB 10, Misgav Industrial Park, D.N. Misgav 20179, Israel
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System Overview

LIADSOFT is a management system that controls the entire production procedure for ready-mix concrete producers, including raw material suppliers, quarries, order entry, dispatching, invoicing and mix design formulation by controlling all activities from the main office. It is a multi-computer, multi-location system that can run on a single station for small plants or many stations for large operations. Its extreme ease of use and flexibility allows screens and reports to be modified by the user to suit his needs.

Don't modify your business to suit the software - run your business the way you want; LIADSOFT software adjusts itself to fit your needs.

LIADSOFT is already in use in dozens of ready-mix operations, large and small. LIADSOFT helps you to compete profitably in a business with ever decreasing margins by:

- More accurately calculating product margins based on true material costs.
- Giving superior service by automatically establishing priorities for the dispatcher and the batcher.
- Adding to the invoice all the small extra charge items that tend to be overlooked, such as extra admixtures, slump variations etc.
- Providing better quality product through modified mix design formulations.
- Giving you total control of your business.
- Automatic recalculation of hauling prices according to fuel cost changes

LIADSOFT offers a compete solution from one source, eliminating the incompatibilities that occur in other products, which combine software programs from several different companies. You can be assured that features which you do not need right away will be available when you need them; they are built into the total solution.

LIADSOFT provides automation to the enterprise level and to operating sites. The total solution is divided neatly into two broad categories:

1. LIADSOFT – those applications that support the business as a whole across multiple operating plants. These applications run centrally and regionally to manage the enterprise. The applications include dispatching, customer service, mixtures management, accounting, billing, accounts receivable, etc. These are discussed in detail in the remainder of this document.
2. Concrete Site Automation – those applications and control devices that are needed to run the concrete plant. These applications support the direct operation of the plant and include the batch panel, batch panel interfaces and local dispatching.

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Enterprise Management

Enterprise Management is the central management system; the data from all the plants flows to Enterprise Management. The database of system tables and data files are managed via this module and automatically transferred to the plants. Enterprise Management Components are:

Customer Service

- Quote management – management and tracking tool for quotes - new quotes, follow-ups, forecasts etc. This is the initial point of entry for every business.
- Order Management - management of the product supply process to customers, by creating daily orders according to customer requirements.
- Customer/Site management – management of the customers & projects database.
- Contracts & Pricing - management of the customer's contracts for pricing information and defining sales conditions.

Logistics

- Central Dispatch - order entry and delivery scheduling.
- Cartage management– manage trucks database and truck transportation contracts.
- GPS (Optionally) – real-time truck tracking with pinpoint accuracy. The GPS module automatically provides delivery vehicle and load status feedback to the dispatcher in a variety of different views and formats.

Technical

- Mixtures Management – maintain formulas (batch tickets) database grouped by raw material sources, each group (batch book) contains batch tickets for a specific set of sources
- Quality Control - manages tracking of independent test results and quality specifications, and receives test results from outside laboratories.

Accounting

- Invoicing/Billing – create invoices for the customers based on the tickets and the pricing information retrieved from the customer/contracts database. Invoice breakdown can be defined by projects, date and product.
- Receivables – follows payments, credit limits and bad debts
- Supplier & Materials Management – keeps track of deliveries and payables
- General Ledger Interface – the connection link to your accounting software
- Lien management – manages lien information and updates the maximum credit for each customer according to the available liens.

Executive Reporting

- MIS & EIS Reports (Management Information System / Executive Information System) – such as sales reports, gross profit , raw material usage etc.

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Enterprise Management: Customer Service: Quote management

This module allows the entry of quotes and managing them through their life cycle (that may be configured to fit any type of operation) and turn them into a pricing object to allow the supply to the specific customer.

Enterprise Management: Customer Service: Order Management

The central dispatch allows the central order taking and central management of the daily orders, resulting in improved customer service since all resources are managed centrally.

The CE central dispatch with the CE local dispatch enables the best of both worlds, the independence of a locally dispatched system with the efficiency of a central dispatch system.

The ability to anticipate delivery challenges during the day improves the customer experience and increases the suppliers' reliability.

Enterprise Management: Customer Service: Customer/Site Management

ENTERPRISE MANAGEMENT allows you to add to your customers' records whatever data is needed to improve the management of customers.

The system keeps three balances for each customer:

1. Receivables balance (Invoices – Receipts)
2. Un-invoiced tickets
3. Post dated checks

One of the most critical things in Ready-Mix production is to ensure that you are not delivering to companies that will not pay their bills. The accounting balance used by most companies is inadequate in assessing the credit risk because there could be un-invoiced tickets or post dated checks that may be bounced by the bank later; the total of the three balances above gives the real credit exposure for the specific customer. This method gives tight credit control; together with the lien management module, you always know the total risk to your operation.

Each site is related to a contract that defines the prices for the project and defines distance/zone codes to enable customer cartage charges and haulers/truckers payments to be made later.

A site may be connected to a project to allow project management and project stages.

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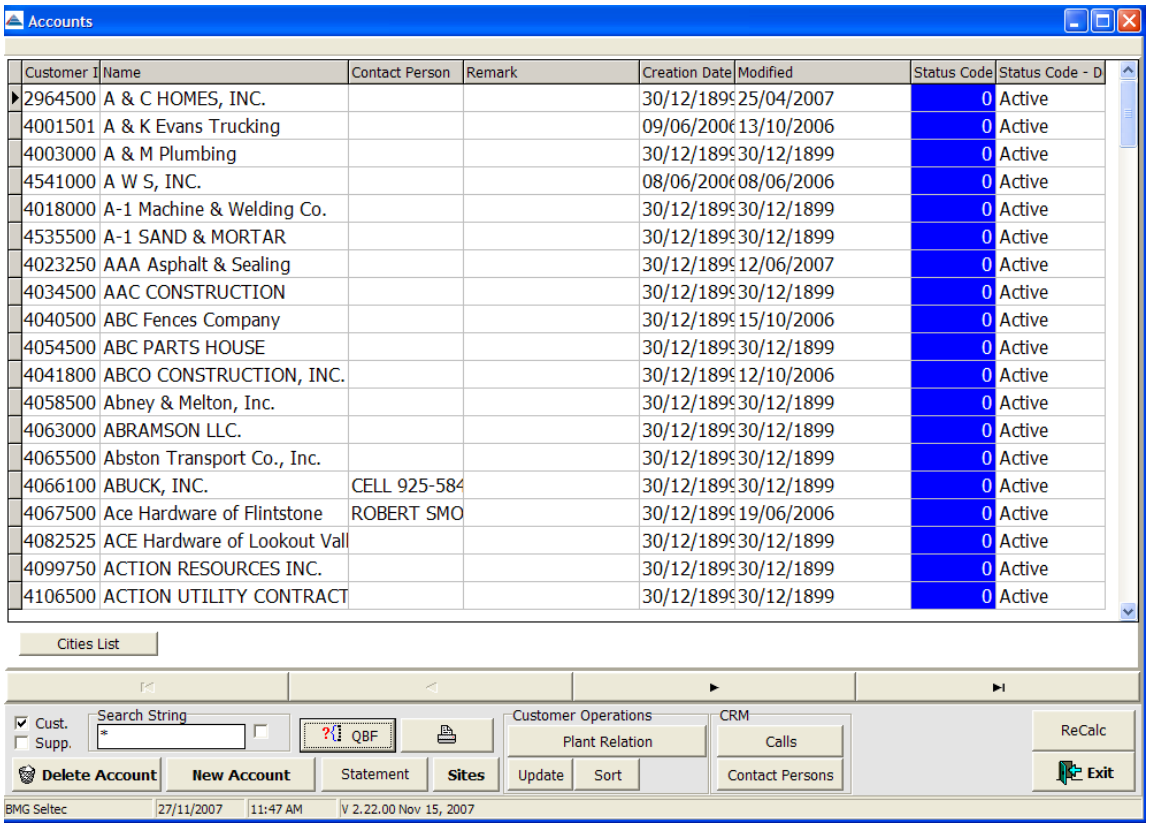
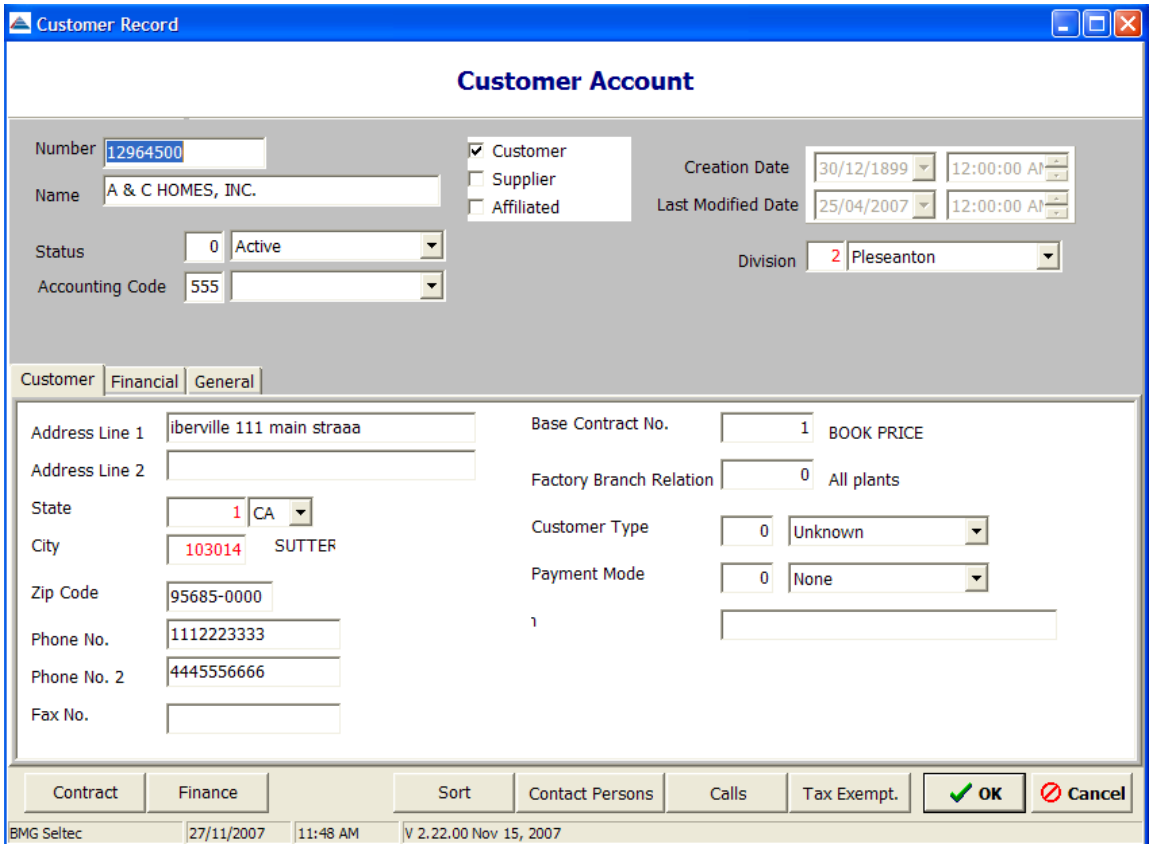
Accounts main form



Customer details



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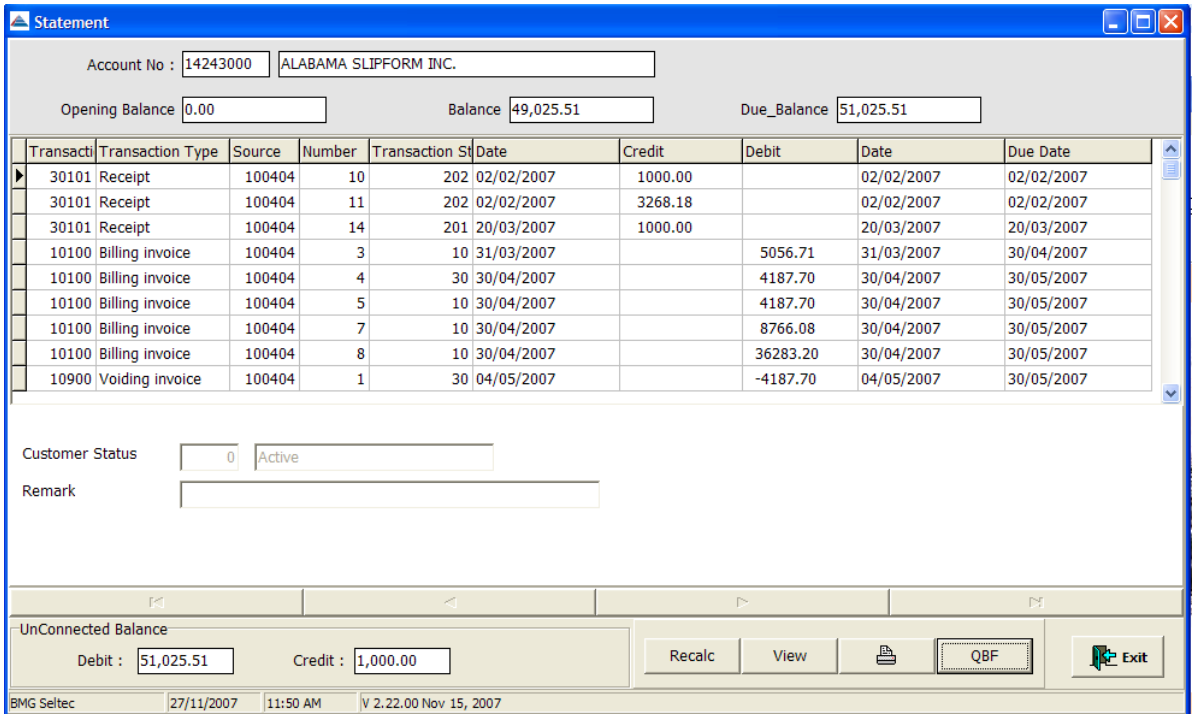
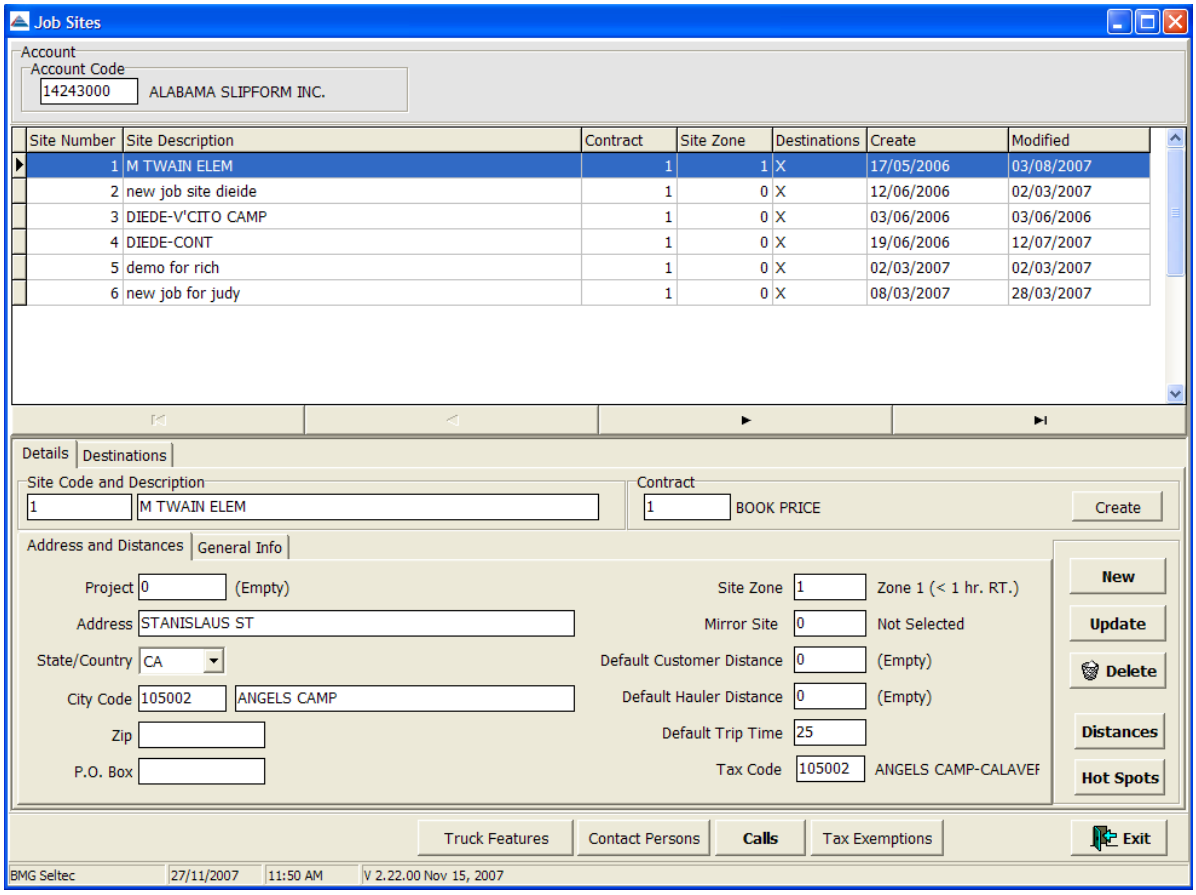
Customer financial report



Customer sites



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Enterprise Management: Customer Service: Contracts & Pricing

Contracts define the pricing for the products supplied to the customers and are related to cartage contracts that define cartage cost. The system allows you to have both general contracts that are not related to a specific customer and specific contracts which are related to specific customer.

The contract defines the prices for items supplied to customer. It is possible to define different prices to the same item when supplied from different plants; the contract can use fixed prices or define a discount (by amount or percentage) relative to another contract (specific or general).

Each contract can indexed to allow automatic price updates when the specific index changes, such as indexing the cost of transportation to the cost of the fuel.

General contracts define basic prices for items and can be used by specific contracts as a basis for pricing. Usually general contracts are used as company official price lists.

This system allows you to give a price for a specific item which is 5% less than the company basic price or $4 less than the price paid by another customer. The discount may be defined on a specific item or on a group of items. The prices/discounts in the contract may be changed at any time and the system will calculate the price valid at the date of activation. All the tickets before the date of change will have the old pricing and those after will have the new pricing.

The prices in the contract may be indexed; this gives you the option to keep your prices updated according to the changes in a specific index like the cement cost, the USD exchange rate or inflation rate in economies with high inflation rates. This is done by setting the Index field for a specific item to the required index, or by setting the Index field on the contract details to keep all the prices in this contract indexed to the required index. It is the user's responsibility to maintain the index values.

Items may be defined as "composed pricing" items. This means that the price of this item will be the sum of the composed items. In such a case the system will search for the specific item code in the contract and if this code is not found then the system will calculate the sum of its sub items. For example, the price for B-30 pump slump 6 will be calculated as the sum of the prices for B-30 concrete + pump addition + 1 slump addition. This method ensures that as long as the contract basic definitions are correct, all calculations will be done without missing any charge. This ensures that every additional item will be charged for automatically, without relying on operators to remember.

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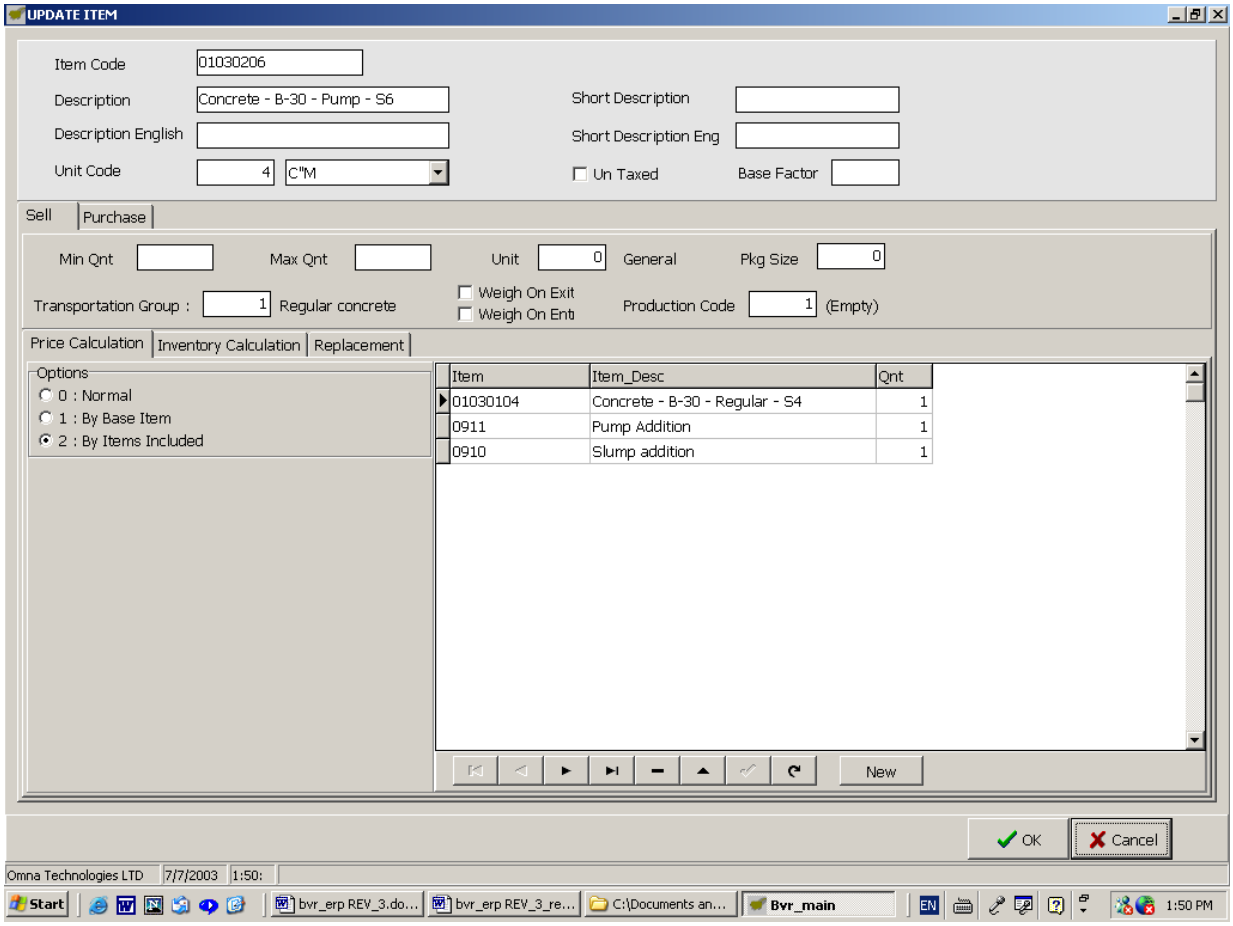
Composed Item Definition



The example below demonstrates the following issues:

1. Different prices for the same item when supplied from different plants (example #1)
2. Contract based on other contracts with a reduction from the base contract (example #2)

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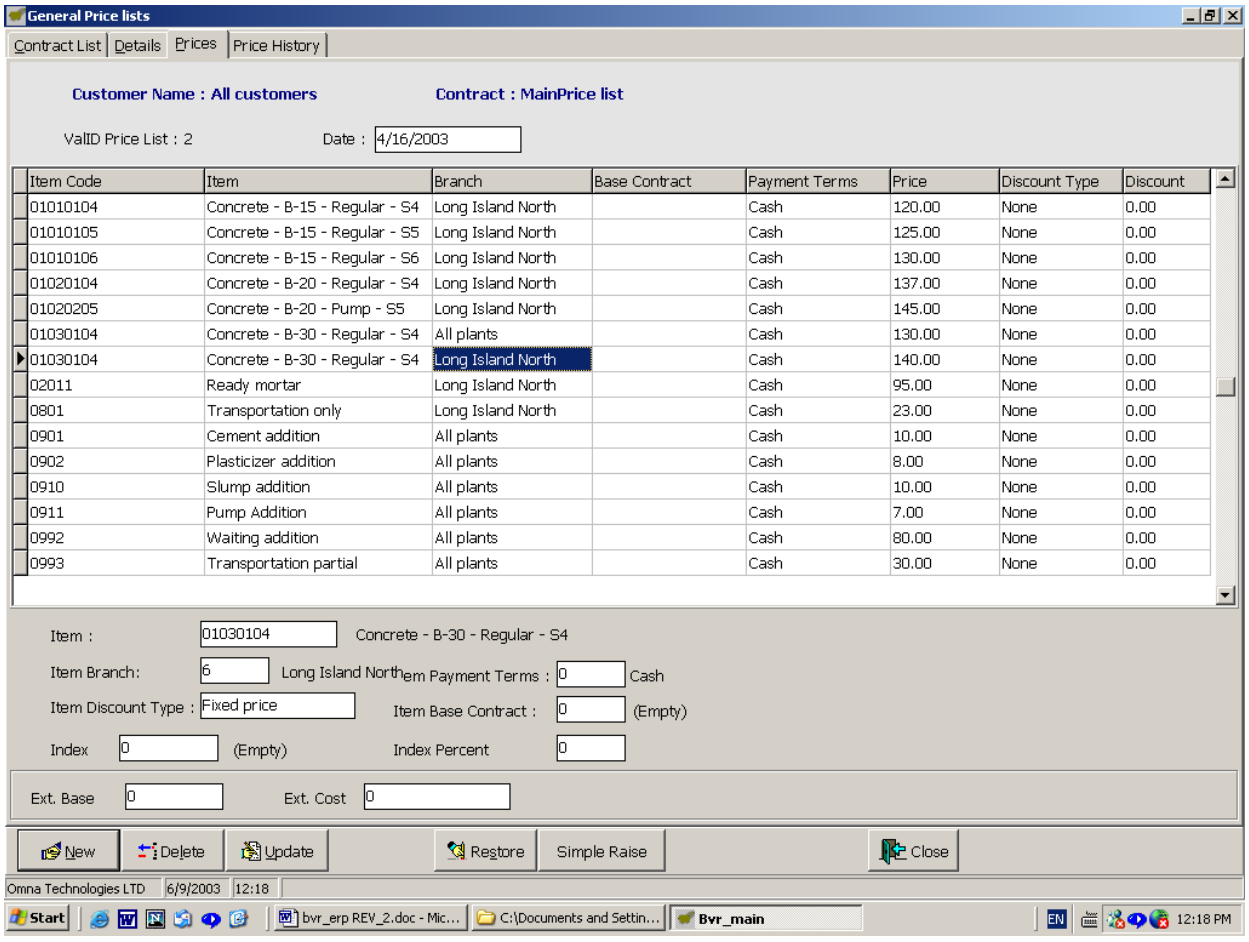
Example #1

In the price list of general contract number 1, Main Price List, the following prices are given:

- Concrete - B-15 - Regular - S4 supplied from long island plant the selling price will be 120
- Concrete - B-15 - Regular - S5 supplied from long island plant the selling price will be 125
- Concrete - B-15 - Regular – S6 supplied from long island plant the selling price will be 130
- Concrete - B-20 - Regular – S4 supplied from long island plant the selling price will be 137
- Concrete - B-20 - Pump - S5 supplied from long island plant the selling price will be 145
- Concrete - B-30 - Regular – S4 supplied from long island plant the selling price will be 140
- Concrete - B-30 - Regular – S4 supplied any plant except long island the selling price will be 130
- Etc.



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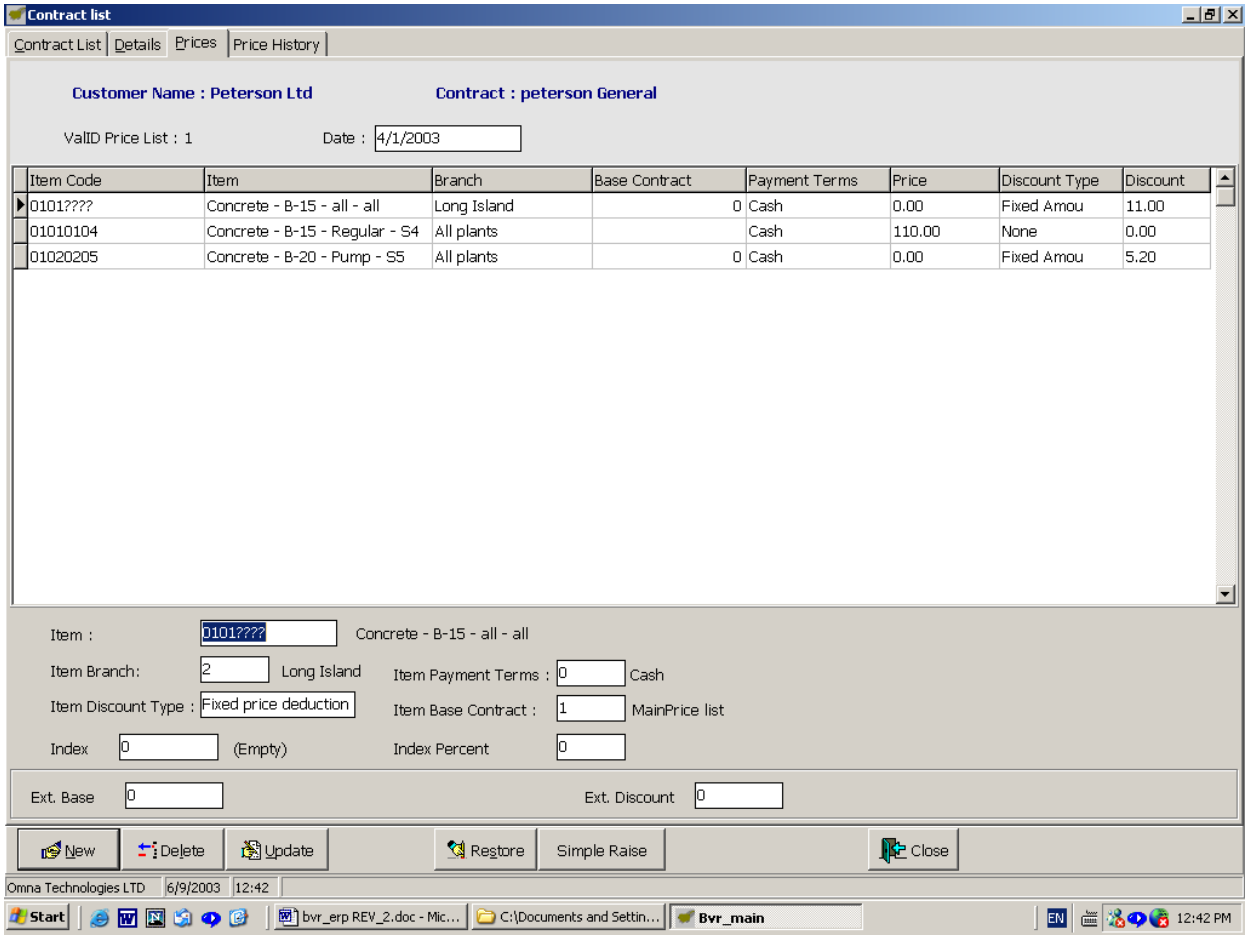
Example #2

Specific contract for Peterson Ltd. defines the following pricing rules:

- Concrete - B-15 – for all types of product supplied from Long Island plant, the selling price will be $11.00 less than the price in contract number 1 (not shown, but for example, for B-15 regular S4 on the previous page, the price will be: $120.00 –$11.00 = $109.00).
- Concrete - B-15 - Regular – S4 supplied from any plant except Long Island plant, the selling price will be $110.00.
- Concrete - B-20 - Pump – S5 supplied from any plant will have $5.20 reduction from price list number 1.



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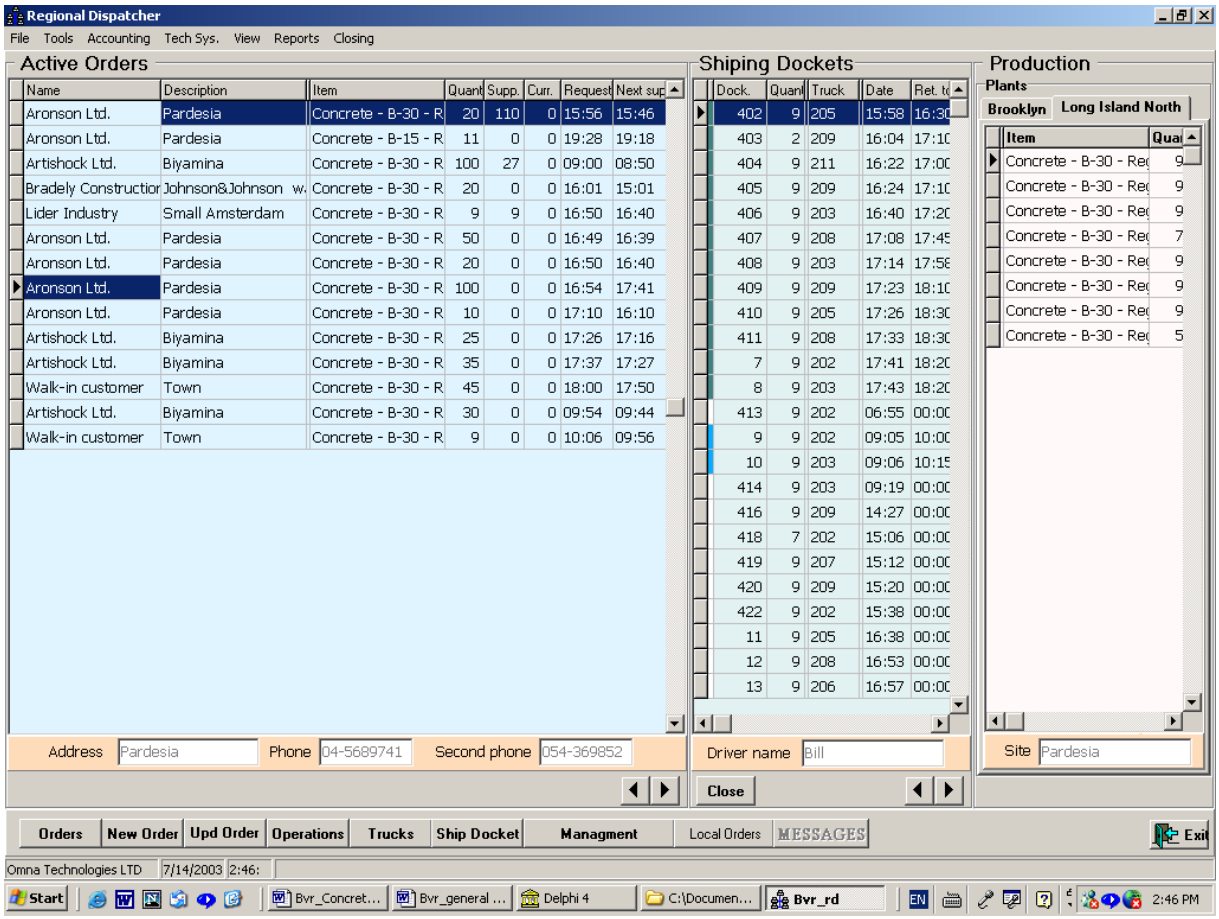
Enterprise Management: Logistics: Central Dispatch

LIADSOFT offers a dispatch solution in two versions: central and local. Central Dispatcher allows a dispatcher to control several plants in the same region; Local Dispatch allows a dispatcher to control a single plant. Each plant can be operated either as a part of a central dispatching network or as a local dispatching unit. It is also possible to have a local dispatcher receive orders from the regional dispatcher. The system is optimized to maximize customer service; this ensures that your customers receive the best service possible.

Central Dispatch module is the management tool for a dispatcher controlling several plants. Central Dispatch allows the dispatcher to control the truck workload, plant workload and the inventory of raw materials.

The dispatcher's main options are:

1. Enter new orders
2. Send orders to local dispatchers in the same region
3. Send load requests to any plant in the region



The Enterprise Management central dispatch form includes the following windows:

- Active orders
- Tickets for the highlighted order
- Load requests waiting for production in each plant in the region

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Enterprise Management: Logistics: Cartage Management

The cartage module allows cartage contracts to be defined, which will calculate the hauling/transportation cost. This can be done by distance, fixed zones, quantity, product etc. The cartage also includes the method for calculation of wait time.

For each customer ticket and raw material entry ticket, ENTERPRISE MANAGEMENT will calculate both the cartage price to bill the customer and the cartage cost to pay the hauler.

After cartage has been calculated, the system will give a full tracking of the revenue earned by each employed trucker and the net to be paid to each hauler.

Enterprise Management: Technical: Mixtures Management

The MIX system is the technical module which manages the concrete & asphalt mixture books and all the needed information to produce and control concrete & asphalt mix designs.

Enterprise Management MIX modules:

Batch books & batch tickets management – manages all mix designs and keeps a history of all changes; no modifications can be done without a trail. The central mix design database distributes "books" of mix designs to the plants and receives load tickets back.

Modification books management – manages the modification tickets which define changes to mix designs.

Aggregate gradation control – Gradation information is stored, for use in mix designs.

Mix design – the design module recalculates the recommended quantities of each raw material based on raw materials gradation. This feature allows quick and easy modification of mixtures when the aggregate gradation changes.

Storage of historical data such as batch tickets and plant configuration is extremely important for two major reasons:

1. Concrete failure: a search may be required, to find the cause of the fault; was it a bad mix design or other problem?
2. Low profit: previous configurations can be checked to find out if production used more cement, for example, or if something else was not defined properly.

ENTERPRISE MANAGEMENT uses two entities to manage the batch tickets in your system:

- Modification books
- Batch books

Modification books define linear operators that perform changes to a specific batch ticket (such as add 10Kg of cement, reduce sand by 2% etc). Modification books are used to implement temporary modifications due to technical reasons and for customer requested additions to the supplied concrete (like adding extra 10 kg of cement, color etc).

Batch books are the containers for the batch tickets; each batch book is defined by the source of raw materials because concrete plants use different mix designs for the same product if the aggregate or cement has arrived from a different source.

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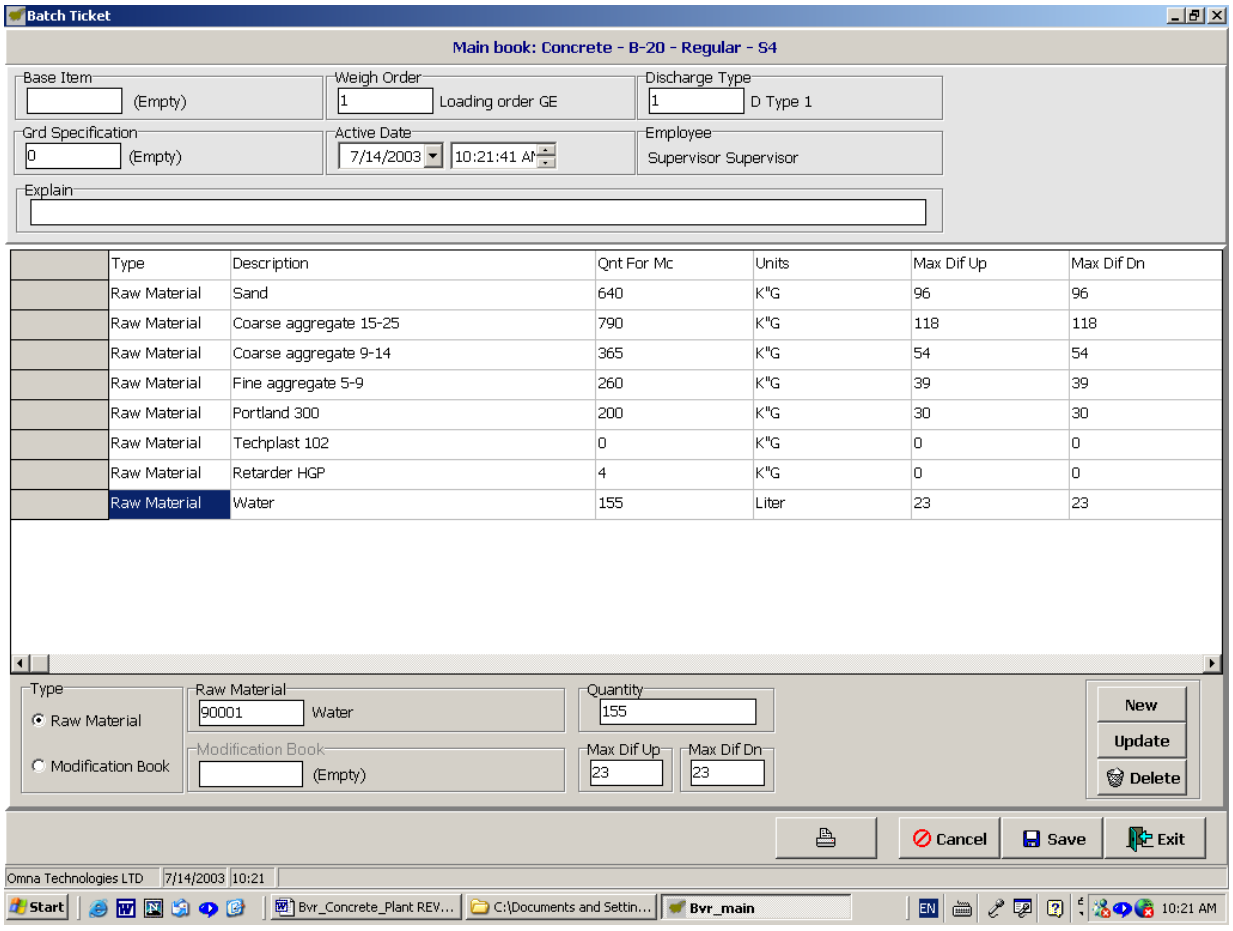
Each product has a batch ticket that defines the raw materials needed for production. The batch ticket can contain a raw materials list with the actual quantities for this product or can be based on a different product plus modifications. Using such a method significantly decreases the errors made when creating or modifying a group of batch tickets.

Example:

The following example demonstrates how to build a batch ticket which is based on another batch ticket.

The first ticket is for B 20 regular slump 4" and the second ticket is for B 20 regular slump 5". This second one is based on the B 20 regular 4" and has a slump modification (slump modification is predefined as +10 kg cement and – 10 kg sand).

Batch ticket for B 20 regular S 4"



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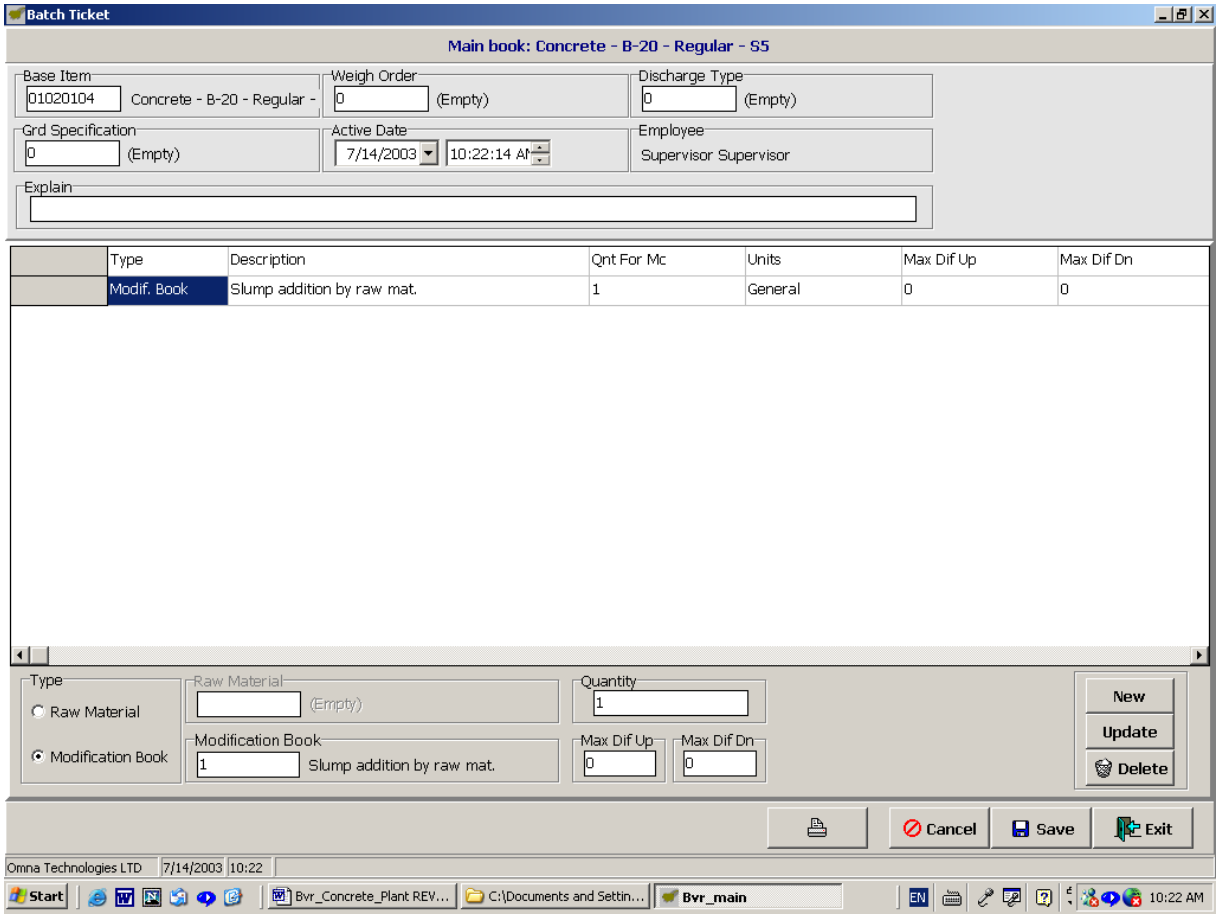
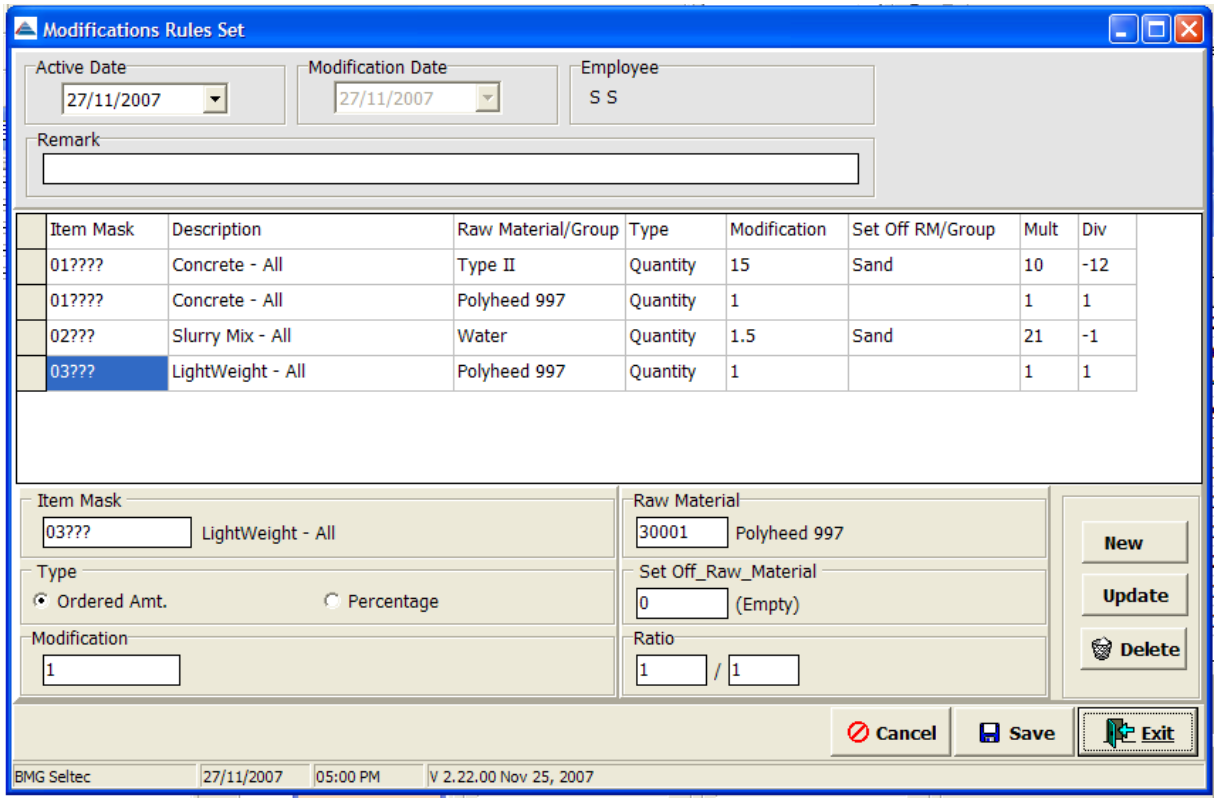
Batch Ticket for B 20 regular S 5" – based on B 20 regular S 4" + slump modification



Modification Card for 1" slump modification:



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According to ISO requirements, all modifications to batch tickets are automatically stored by the system. All previous versions of each batch ticket are kept for future use.

For each plant, the system defines which batch book is to be used at any time and which technical modifications are to be implemented at a given time. This is the ACTIVE plant configuration. Every modification carried out the plant configuration (due to changing ingredient properties etc.) will be recorded automatically by the system and can be viewed at a later date.

Storage of historical data such as batch tickets and plant configuration is extremely important to the company for two major reasons:

1. Concrete failure: a search may be required, to find the cause of the fault; was it a bad mix design or other problem?
2. Low profit: previous configurations can be checked to find out if production used more cement, for example, or if something else was not defined properly.

Enterprise Management: Technical: Quality

The Quality system is the quality control system for concrete/asphalt/aggregates. The system defines tests and quality standards. The user can enter samples and measurements performed on the samples; the system will then calculate the results and success/fail status.

This system is based on a custom report generator enabling it to be adapted to the requirements of any country or state; you can arrange your data the way you want it and create reports to suit special requirements and contract specifications.

The Quality system modules are:

1. Test definitions
    a. Which tests are performed on each product.
    b. Measurements that are performed for each test.
    c. Calculation method and results calculated from the measurements.
2. Sample entry – Entry of product samples taken from the regular production. The system creates the tests required for each sample and the user enters the measurements.
3. Reports – Powerful report generator creates any report required from the measurement data.

Enterprise Management: Accounting: Invoicing/Billing

ENTERPRISE MANAGEMENT calculates the price for each ticket. The price is composed of two categories: product and hauling.

The product price calculation includes the following sections:

1. Product price (may be a composed price calculation, see composed item definition)
2. Additions price.
3. Cartage price.
4. Waiting time price
5. Partial transportation fees when the truck is not fully loaded.

ENTERPRISE MANAGEMENT automatically calculates every ticket entered in the system. Recalculation is possible (if the contract is changed) up to the time when invoicing is completed.

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After the tickets are calculated, ENTERPRISE MANAGEMENT will bill the customers in a number of different ways, according to the customer's wishes, by site (project), date, item groups, etc. The invoices can be transferred to the accounting system or to the receivables module.

Enterprise Management: Accounting: Accounts Receivable

After billing the customers, the receivables module allows full control of the customer's credit status. The system allows entry of payments and deposits of cash and checks. The system allows instant checking of customer accounts and payments with the possibility to "drill down" from the customer account and quickly access the invoices, from a specific invoice to the tickets of the invoice or to the payments on this invoice, in order to quickly pinpoint errors or verify amounts.

Enterprise Management: Accounting: Supplier & Materials Inventory Management

ENTERPRISE MANAGEMENT has a perpetual inventory module which is connected to the batching system for the raw material usage transactions and ENTERPRISE MANAGEMENT Dispatch for raw material delivery tickets. Manual entries and adjustments can be made.

The cost of material and hauling are calculated for each delivery ticket for supplier's invoicing control. By keeping updated supplier contracts in the system, the user can check his supplier's charges and make sure no extra charges are paid.

Enterprise Management: Accounting: General Ledger Interface

Enterprise Management has a powerful accounting interface that can be adapted to any accounting system. Enterprise Management does not force you to use any particular accounting system because different accounting software is preferred by different companies and industries. Also, different countries have special accounting rules which have to be built into the accounting package. We can recommend accounting software packages, however, based on our industry experience and past experience of use with the Enterprise Management system.

After all documents have been created, the system can build a journal batch for invoices, receipts and deposits. The journal batch can be exported as an ASCII or XML file for the external accounting system.

Enterprise Management: Accounting: Lien Management

Some customers are good some are bad, this is a fact we all should live with, but even the good ones can only be trusted up to a certain limit. For each customer, ENTERPRISE MANAGEMENT allows you to set a credit limit. The system will not allow further deliveries when this limit is reached. The maximum credit for a customer may be based on your credit checking data (for good customers) or on actual liens (for unknown risk customers). You decide on how to manage the risks for your customers.

Liens are mortgaged assets, enslaved or attached assets or any other security given by the customer to ensure his payments.

The lien module is a management tool to help you control and manages the lien information.

The system will calculate the total liens available for each customer, in order to set the credit limit.

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Enterprise Management: Executive Reporting: MIS & EIS Reports

(MIS = Management Information System, EIS = Executive Information System)

Time is money. To make the right decisions, accurate information is required quickly. With Enterprise Management's Query generator, the end user can immediately build any report needed for decision making. Any query can be transferred to a Microsoft Excel form for graphic presentation, or can be evaluated directly with the built in pivot table mechanism.

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Concrete Site Automation

1. Local Dispatch
    a. Order Management – Enter new orders into the system and modify existing orders.
    b. Dry Goods Product Ticketing – create tickets based on the orders in the system.
    c. Mixtures Management – manage your formulas database.
    d. Raw material deliveries & inventory control – register raw materials entries, real time stock control.
    e. Walk-in customer invoicing – invoice walk-in customers on their tickets when the order is finished.
2. Batch Management
    a. Truck control – manage your available trucks on a daily work plan.
    b. Concrete Ticketing
    c. Mixture Control
3. Concrete Batch Panel

Concrete Site Automation: Local Dispatch

Local Dispatch is a complete software system to manage dispatching for ready mix concrete. Local Dispatch comes in two versions: local dispatcher and regional dispatcher. The local dispatcher module allows a dispatcher to control one plant, while the regional dispatcher allows a dispatcher to control several plants in the same region. Each plant can be operated either as a part of a regional dispatching system or as a local dispatching unit; it is also possible to have a local dispatcher receive orders from the regional dispatcher. The system is optimized to maximize customer service; this ensures that your customers receive the best service possible.

LOCAL Dispatch allows the dispatcher to control the truck workload, plant workload and the inventory of raw materials.

All the ENTERPRISE MANAGEMENT ERP modules (normally part of the main office ERP system) can be added to the LOCAL Dispatch menu; this is usually done in single plant operations where the dispatcher is doing all the plant management activities, to combine the two operator positions into one.

Raw material entry & Inventory control

The dispatcher can record raw material deliveries, raw material transfers and physical inventory adjustments to keep an accurate and up to the minute inventory control of all materials for each plant.

Walk-in customer invoicing

“All customers are welcomed.” This is our motto and is the reason we have added this module to help the dispatcher bill the walk-in customers and collect payments with the order or COD without waiting for the accounting department to do so. From the accounting point of view, all walk-in customers are treated as one account to avoid accumulation of many one-time customers.

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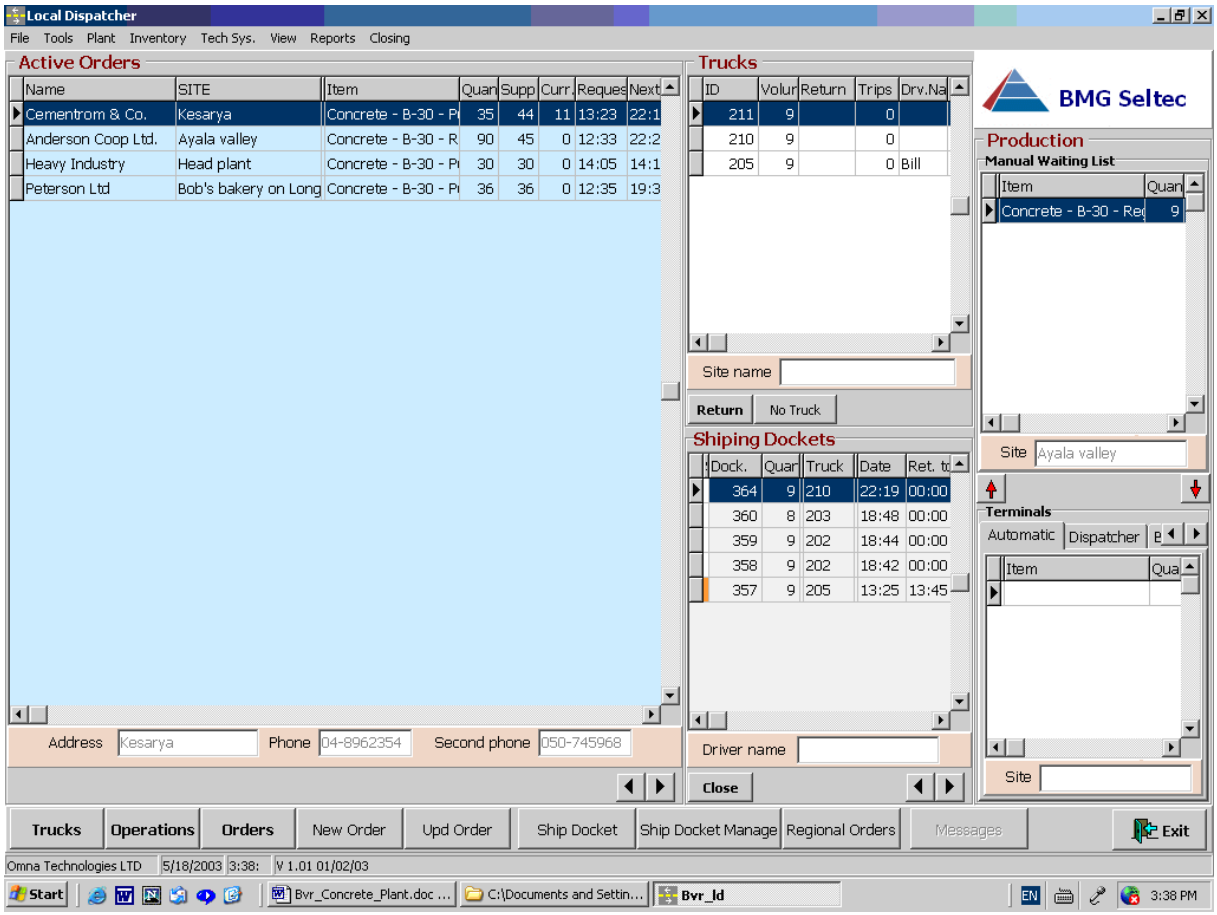
The Local Dispatch main form



The main form contains the following sub-windows:

1. The Active orders list
2. Available trucks
3. Tickets for the scheduled orders (once an order is selected in the active orders grid the tickets of this order are listed in the tickets grid).
4. Pending loads list (each grid displays the pending load waiting to be produced by each batcher. In manual dispatching, the dispatcher sends these loads to production manually. In automatic dispatching, the first batcher that becomes available will take the loads from this list.

The data displayed in all screens can be modified by the user, to adjust the “look” of the forms to suit the specific needs of the company.

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Concrete Site Automation: Local Dispatch: Order Management

The **active orders** window displays the data needed for all the active orders for the local dispatcher; the orders are sorted so that the first order is the one to be served next.

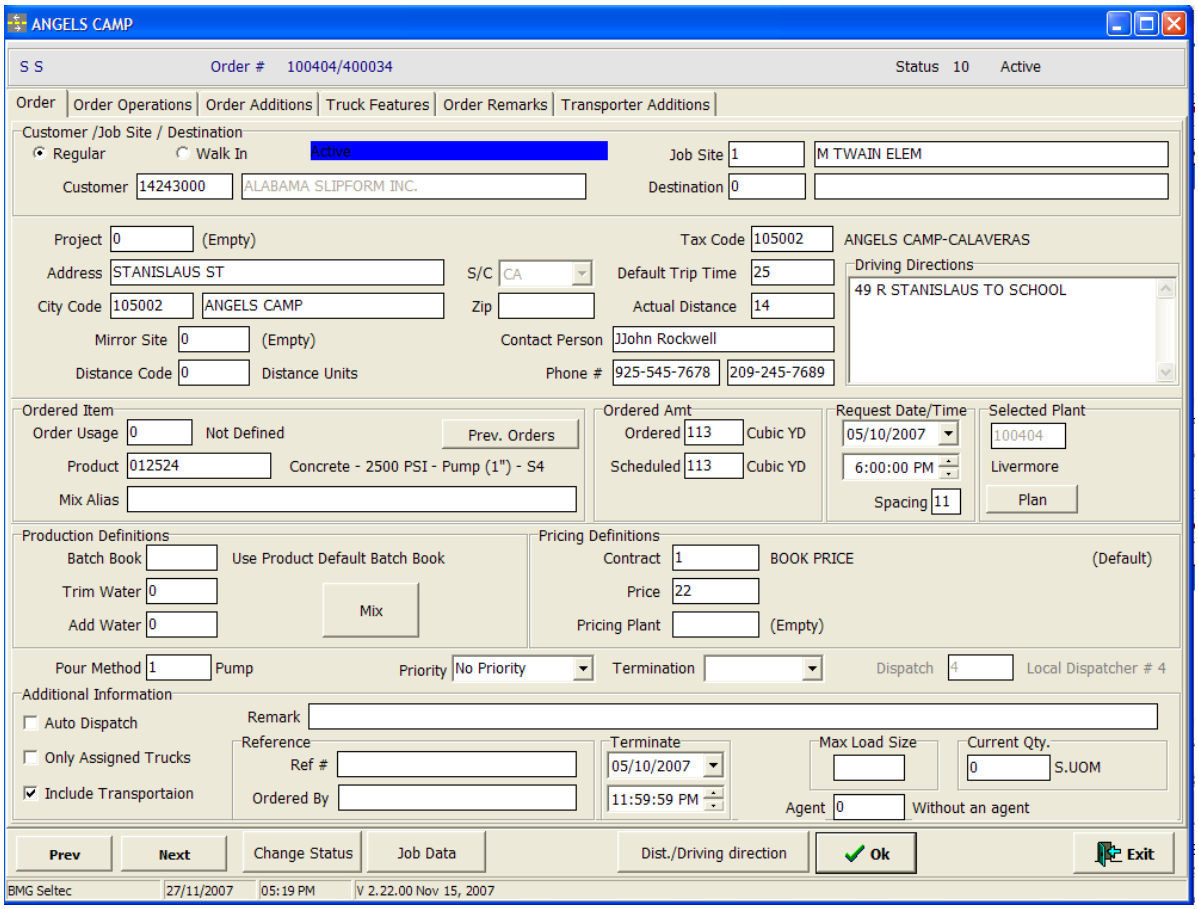
When entering a new order the dispatcher enters the following data:

1. Customer, plus project if applicable
2. Product definition & customer requested additions
3. Total Quantity and current quantity – current quantity is used for jobs which are split into several portions; when the current quantity reaches 0, the order is sent to the back of the queue and will be continued later, at the customer's request.
4. Frequency & priority of concrete deliveries
5. Date & time at which to start deliveries
6. Preferred plant to produce this order, based on dispatcher's experience.

When the order is placed, the system will check the customer's credit and notify the dispatcher if the customer has enough credit to fulfill the order.

The **Active orders** window is the most important one in the system. It is always sorted by priority so that the order that is the first on the list is ready to be served first.

Order Form:



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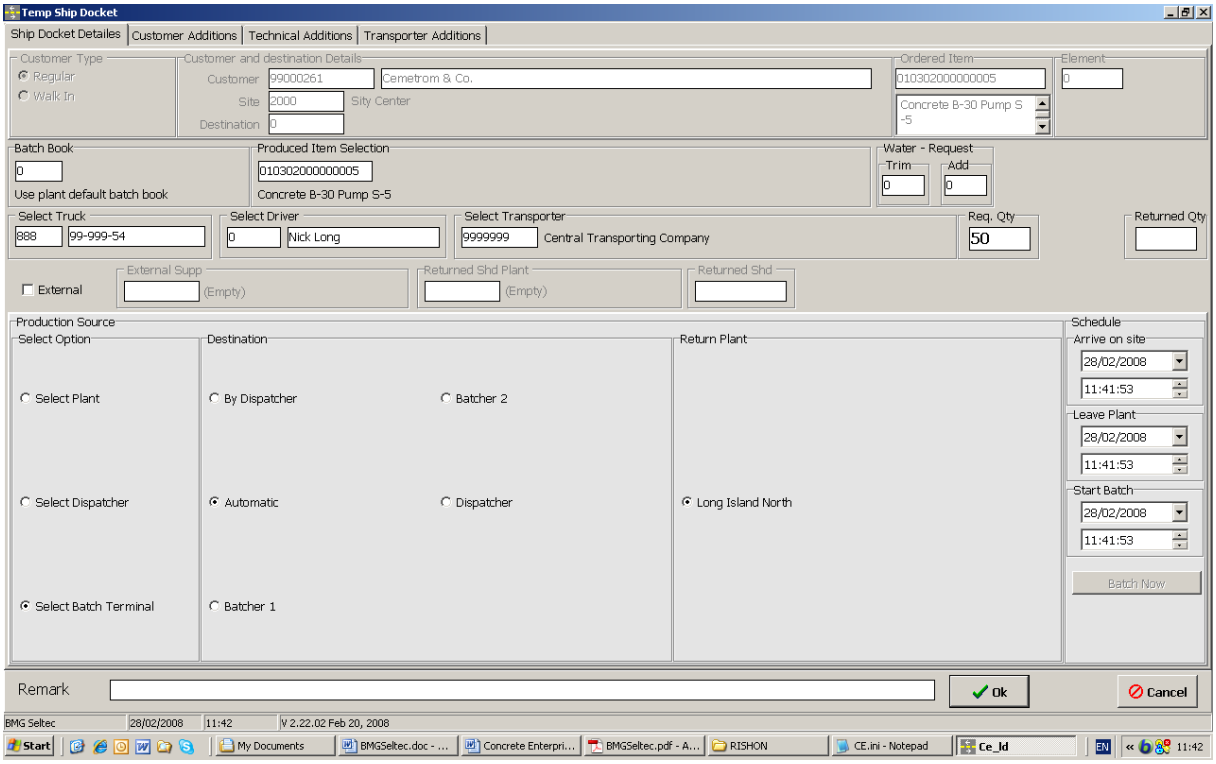
Concrete Site Automation: Local Dispatch: Dry Goods Ticketing

The dispatcher can start the process of ticketing by selecting an order from the **active orders** list and a truck from the **available trucks** list. If the truck is not selected by the dispatcher, the batching operator enters the actual truck number before discharge starts.



All the details from the order will be copied to the temporary ticket; the dispatcher can change the quantity, time of supply, technical additions and customer additions.

If the truck has returned to the plant with some concrete remaining in the mixer, the returned quantity must be entered, allowing the system to calculate the quantity to be added to the truck in order to produce the correct amount of concrete for the new ticket (load). A compensation value for hydration of the cement in the returned concrete can be entered, which adds extra cement to the new batch.

The system will display a message when the customer credit will not allow the supply of the ticket, to instantly cut off supply when a credit problem is detected.

The temporary ticket (pending load) is then transferred to the batcher, together with the “load requested time”. On the batcher’s screen they are sorted by priority, ready for batching.

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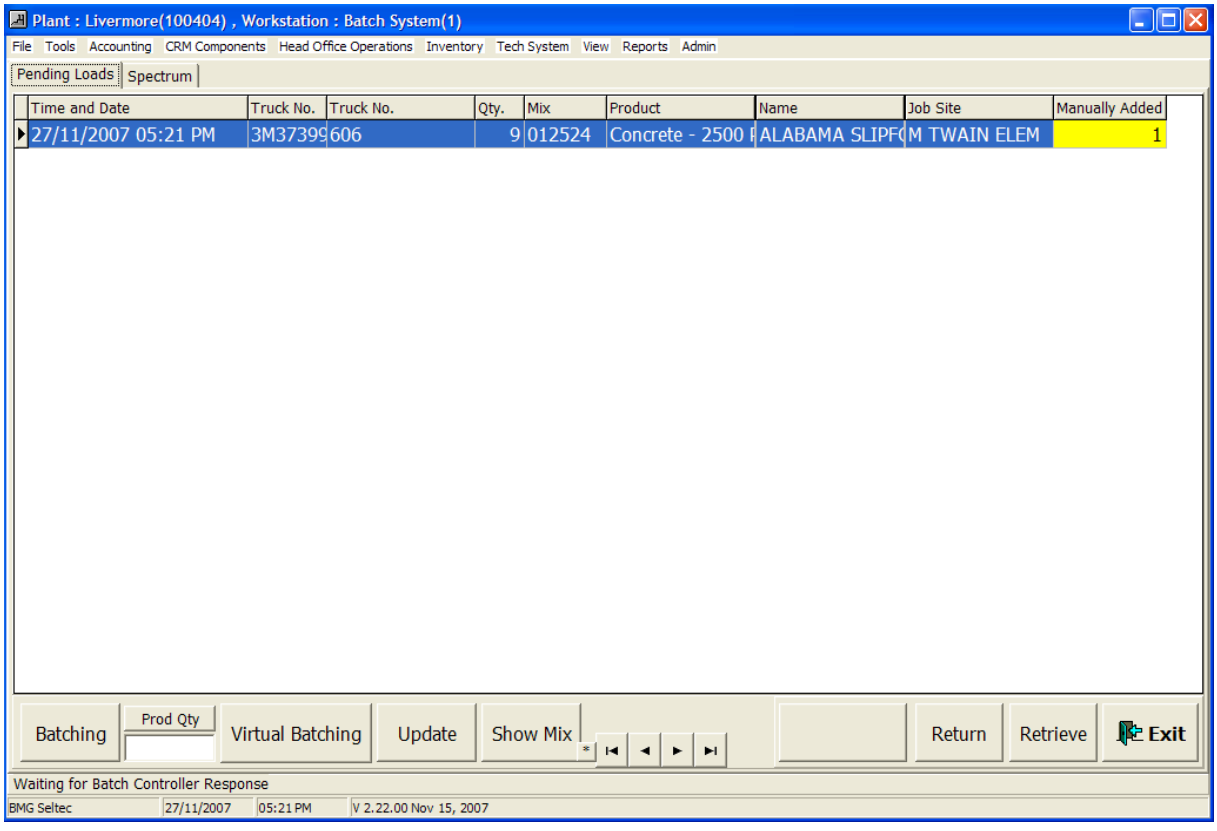
Concrete Site Automation: Batch Management

1. Truck Control
2. Concrete Ticketing
3. Mixture Control
4. Connectivity to batching system

SITE AUTOMATION Batch is the link between the LOCAL Dispatch and the batching controller; this module displays to the batch operator all the pending load requests. The batch operator can transfer any or all of the requests to production. When the production of each load is finished, a ticket is printed on the dispatcher's system and the inventory is updated.

When the load requests are created by the dispatcher each load is stamped with the time the load production should start while the trip time and the load time are taken into consideration, the requests are ordered so that the first one should be produced now, in this way the system helps the batcher to decide which truck to load first in order to get better customer service.

Batch operator's schedule form:



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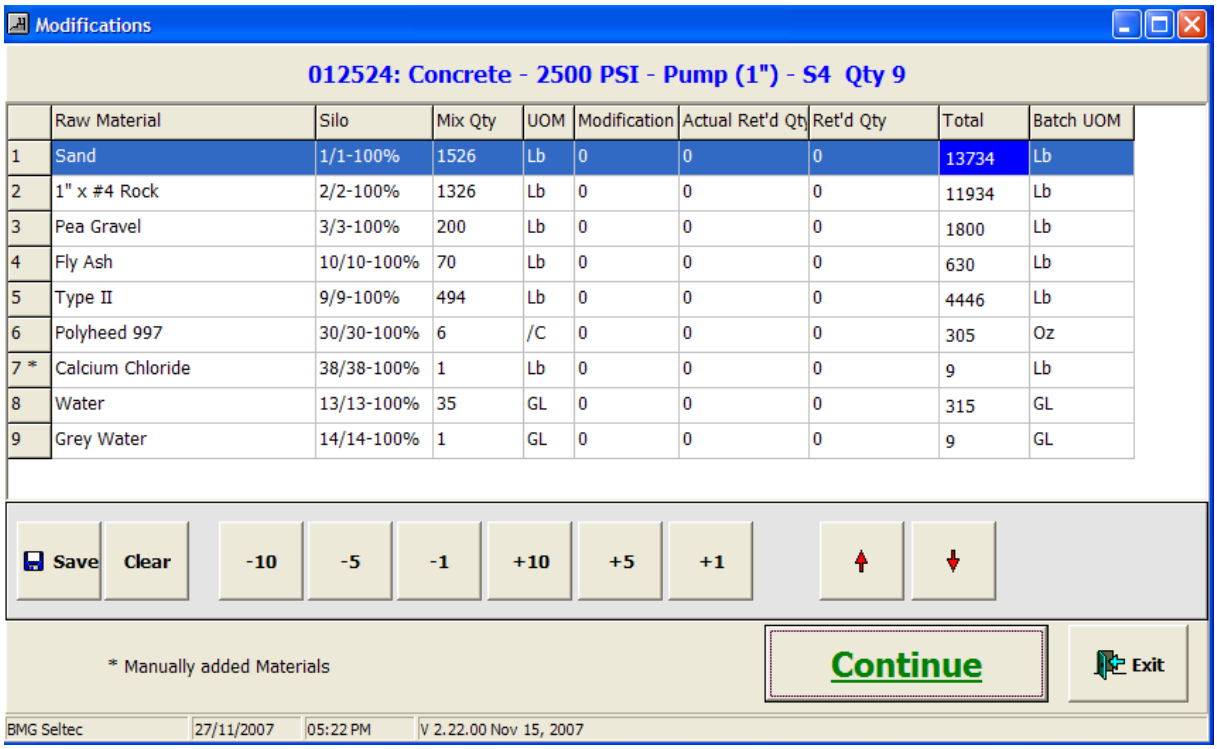
Concrete Site Automation: Batch Management: Mixture Control

When starting the batching process, the system will allow the operator to perform minor changes to the mix formula prior to sending the request to the batching controller. The system will recalculate the entire admixture quantities if cement was changed, based on a constant admix/cement ratio, and will store the modification for the next production cycle if requested, or can be discarded if the change was temporary.

Modification form:



	Raw Material	Silo	Mix Qty	UOM	Modification	Actual Ret'd Qty	Ret'd Qty	Total	Batch UOM
1	Sand	1/1-100%	1526	Lb	0	0	0	13734	Lb
2	1" x #4 Rock	2/2-100%	1326	Lb	0	0	0	11934	Lb
3	Pea Gravel	3/3-100%	200	Lb	0	0	0	1800	Lb
4	Fly Ash	10/10-100%	70	Lb	0	0	0	630	Lb
5	Type II	9/9-100%	494	Lb	0	0	0	4446	Lb
6	Polyheed 997	30/30-100%	6	/C	0	0	0	305	Oz
7 *	Calcium Chloride	38/38-100%	1	Lb	0	0	0	9	Lb
8	Water	13/13-100%	35	GL	0	0	0	315	GL
9	Grey Water	14/14-100%	1	GL	0	0	0	9	GL

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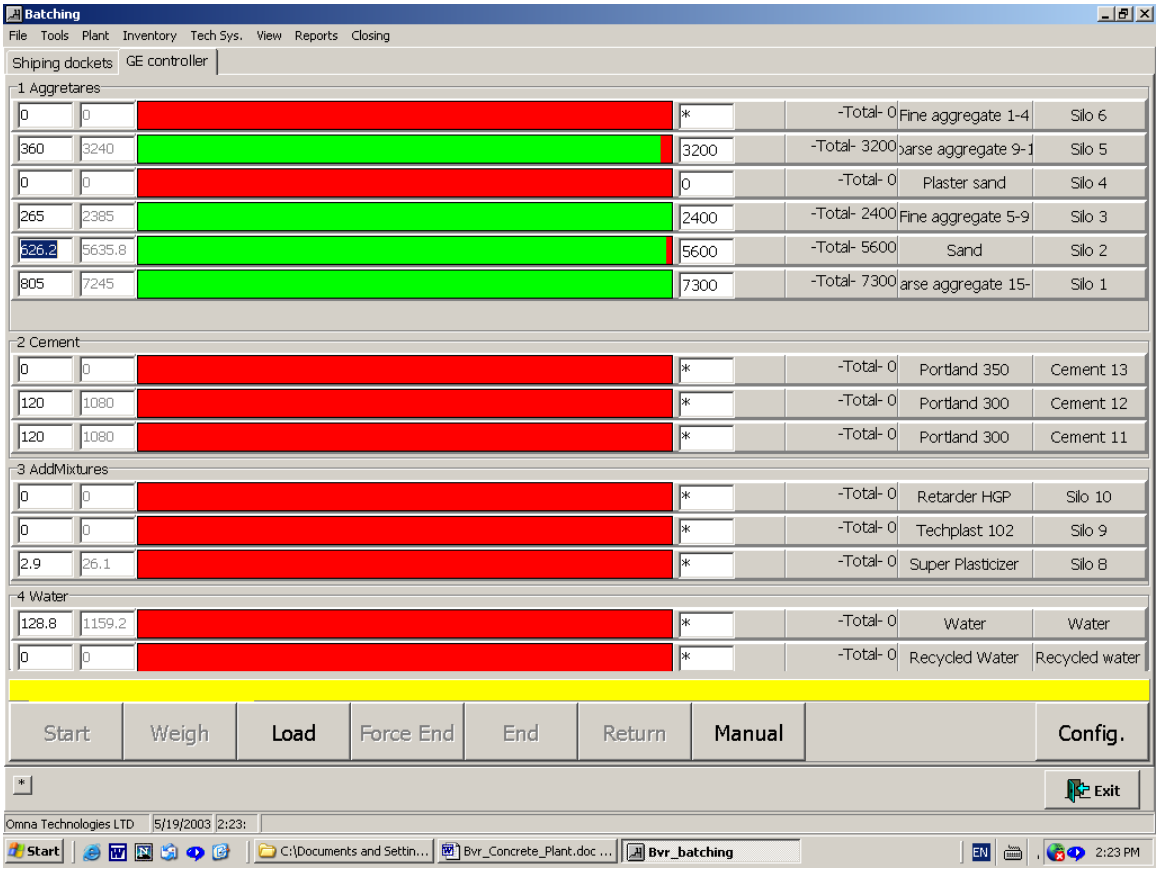
Transfer of data to batching system

When the operator wants to send the request to the batching controller the system calculates the mix formula while taking into consideration the basic mixture, technical modifications, operator's modifications and customer's additions. It also subtracts the returned concrete quantities with a correction factor depending on the degree of hydration. After sending the request, the system will wait until the batching controller has finished production of the load and will signal the dispatcher that the ticket is ready, saving the actual quantities in the database.

Production form:



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Concrete Site Automation: Batch Management: Truck control

The **truck work plan** is the list of trucks available for the day. For example, truck 23 arrived at 06:05 am at plant 6, truck 32 arrived at 06:35 etc. This is used to analyze the truck workload.

The system keeps a record of all truck activities during the working day. The dispatcher can enter the trucks in the work plan, shift trucks from plant to plant and remove trucks from the work plan.

When each ticket is printed, the truck's record is updated with the new ticket data. This allows the system to sort the trucks in the order of estimated return time to the plant.

Truck identification using TIRIS technology, Site Automation Batch optional feature

This software module, together with the hardware required (controller + antenna for each loading position and an RFID badge for each truck) will check that the truck in the loading position is the correct one; alternatively, if there is no truck pre-assigned, it automatically assigns the truck in the loading position to the ticket being printed. This option eliminates the problem of having the wrong truck loaded and possibly delivering the wrong mix design to a critical job, with its possibly disastrous consequences. It is more secure than the common procedure of reading the truck number with a video camera, since it does not rely on an operator to notice the error.

Local Batch add-on:

- Truck identification using TIRIS radio I.D. tag technology (www.tiris.com)

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Concrete Site Automation: Batch Management: Mixture control

The mixture control module allows the user to manage all his **batch tickets** in separate **batch books**. Each batch book is for a different source of raw materials. Each ticket can contain a full list of the raw materials & quantities or, alternatively, can be based on another batch ticket plus a modification. This feature allows the changes to a group of batch tickets to be automatic, once the basic mix design is changed, and helps the user to avoid mistakes. To allow full control, the system automatically creates a new version when each modification is carried out.

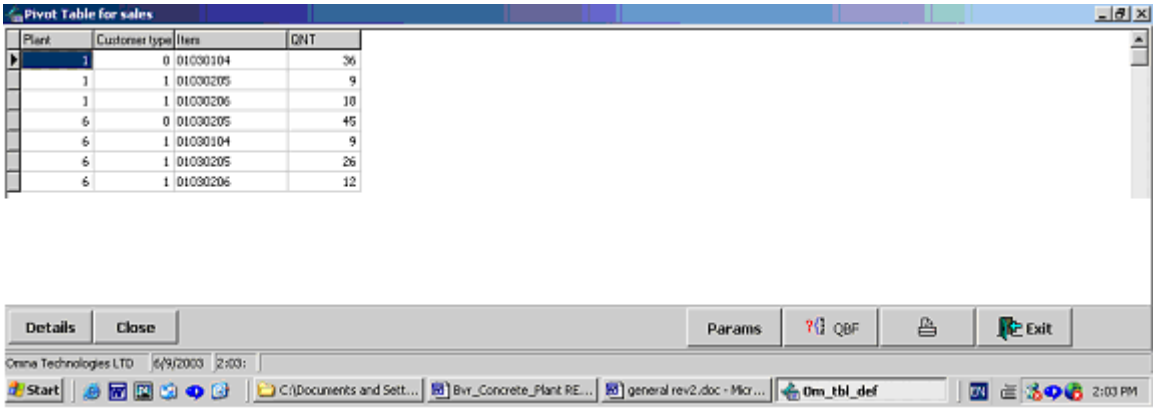
The dispatcher can also change the batch formulas at the local plant level and modify technical additions to optimize his production. A special authorization password is required before these changes can be made.

Data Mining

Time is money. To make the right decisions, accurate information is required and fast. With the query generator, the end user can immediately build any report needed for decision making. Any query can be transferred to a Microsoft Excel form for graphic presentation, or can be evaluated with the built in pivot table facility.

Pivot Tables or Decision Cubes are a method of summarizing the data display in different ways, in order to present the data in such a way as to bring out important trends.

In the following example, a summary report is made of the sales by plant, customer type and item code. In this screen you can see the query results:



The table can then be “pivoted” to show the same data in different ways in order to make it more relevant to a particular management need.

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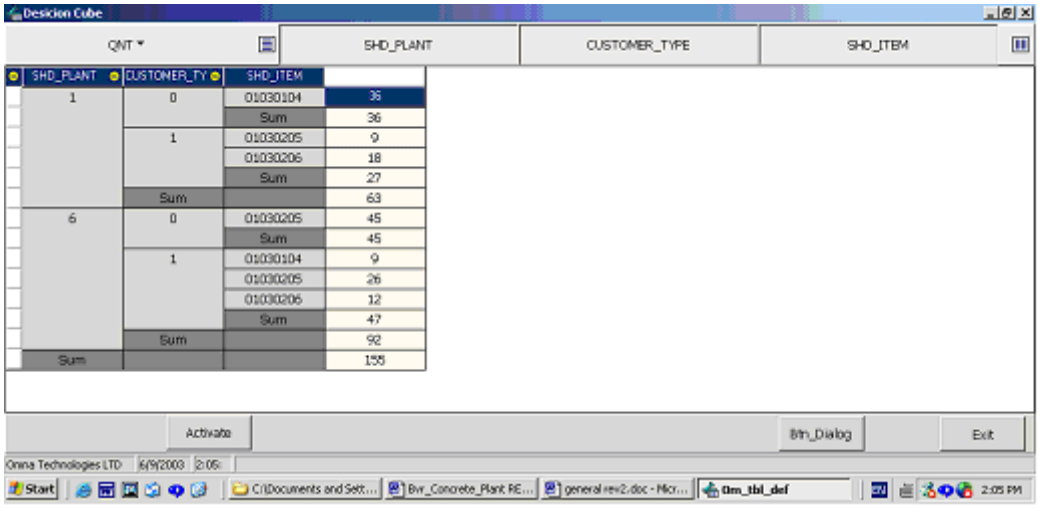

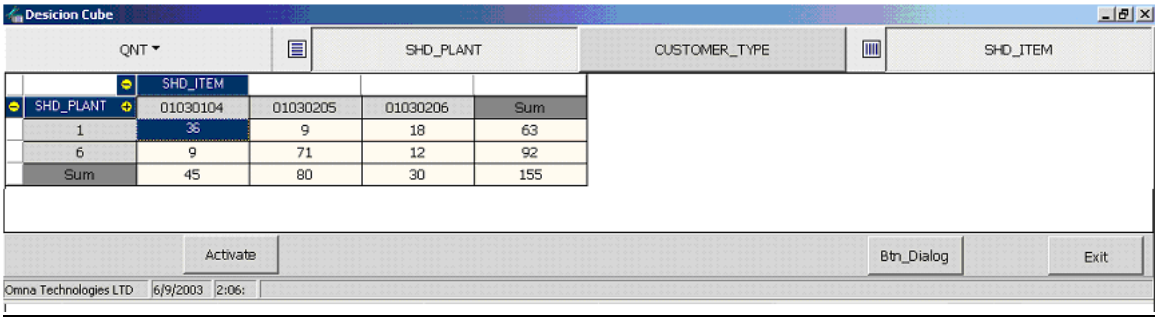

"Pivot table" is a term used in Microsoft Excel to describe the procedure shown above. Although you see three simple presentations here, with no apparent gain in understanding, the principle is to gain better understanding in more complex situations, in order to help in making decisions.

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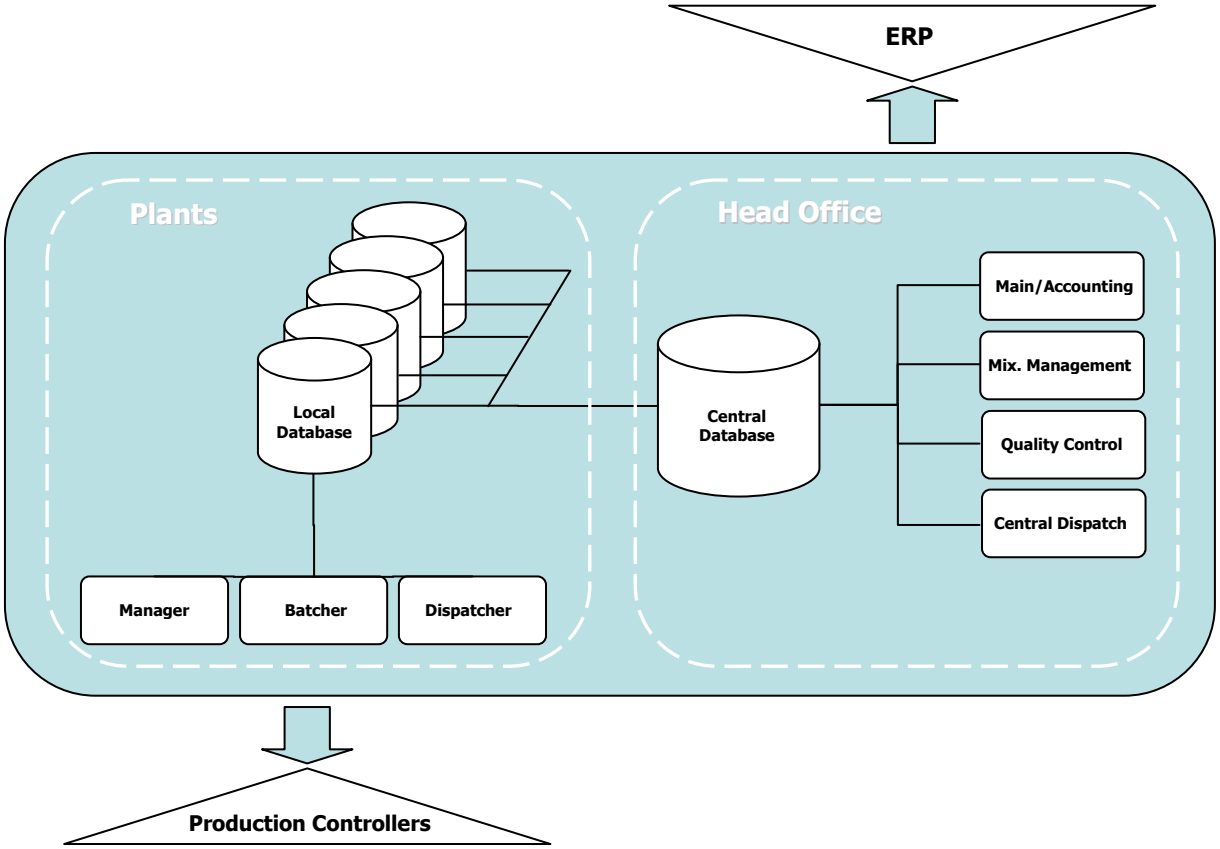
System Architecture

Technically, LIADSOFT uses the industry standard Microsoft SQL database, giving extensive data mining possibilities with the query & report generator. Plants can communicate either continuously or only when needed; all systems can run on their own, sending data to the head office when they are able to and storing it when the communication line is down. It has extensive import and export data capabilities with internal XML & ASCII file generators.

The most noticeable feature of LIADSOFT is the ability for the user to modify screens, reports and queries to suit his needs - something that no other software does. The result is easier operation because it does exactly what you want it to do; you are not forced to tailor your operation to the needs of the
software.



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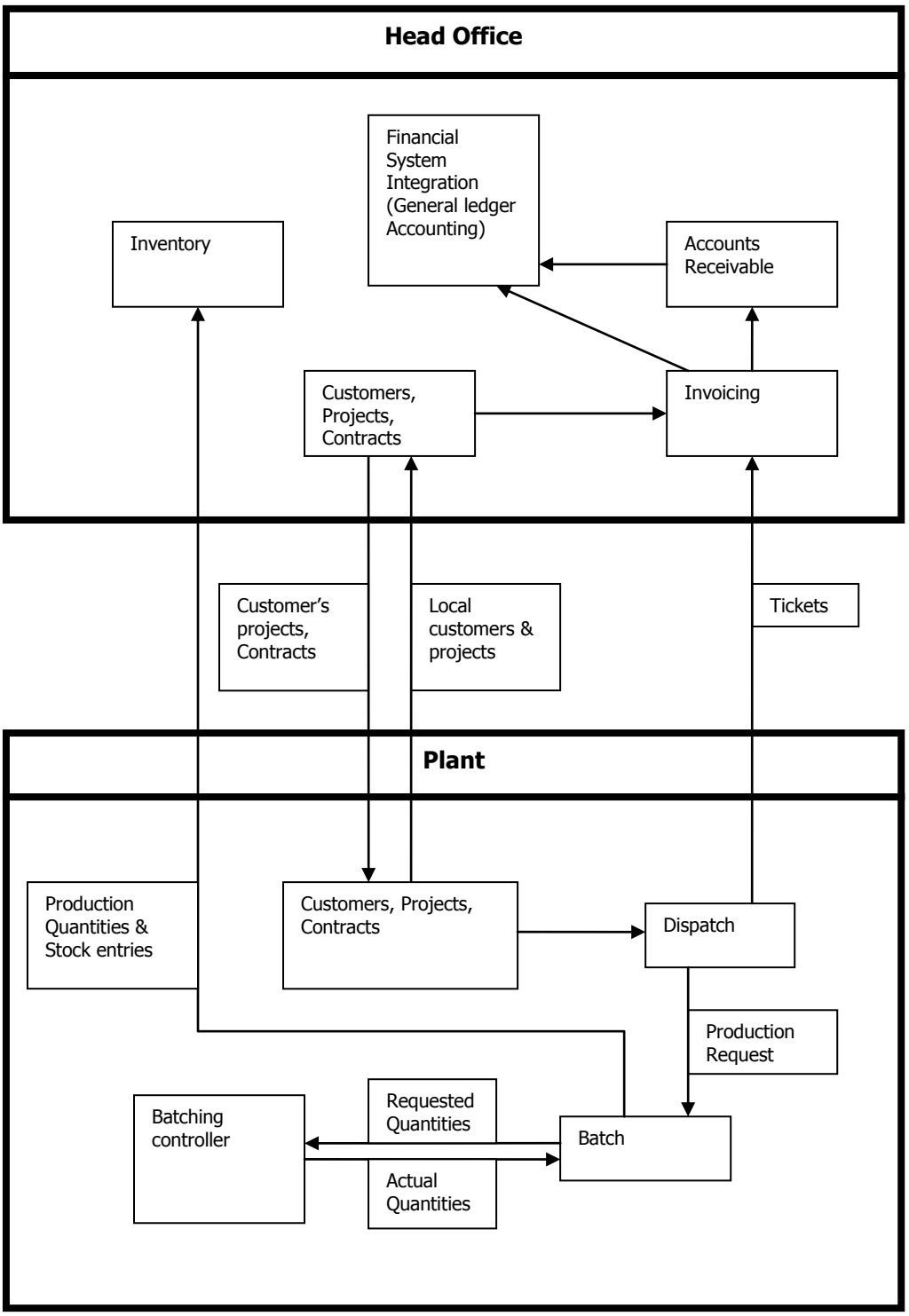
System data flow:



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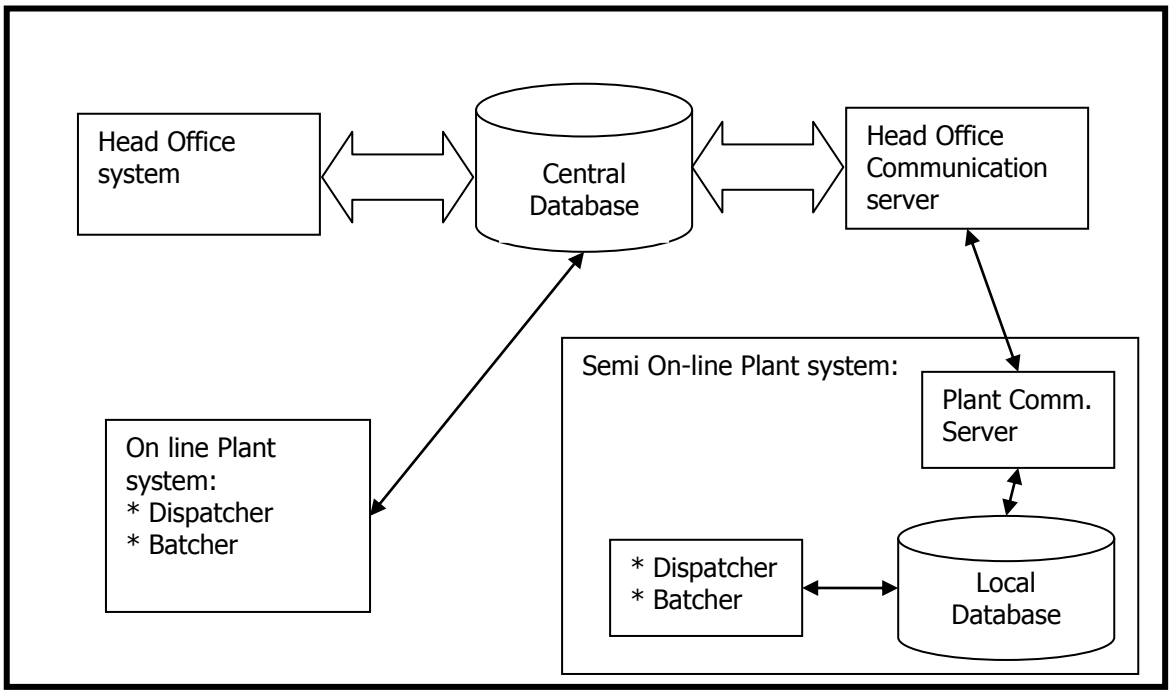
System physical structure:



Communication between plants and head office may be done in two ways:

1. Online – the plant is connected to the main database via high speed communication links.

   Benefits: * save money on database license
   * simple maintenance – one location

   Drawbacks: * Work stops when communication link fails
   * High cost of high speed links

2. Semi online – Each plant has its own database and a communication server will keep the data synchronized.

   Benefits: * Independent plants
   * lower cost of communication
   * may use dialup phone link

   Drawbacks: * database maintenance: more databases to maintain
   * More points of failure

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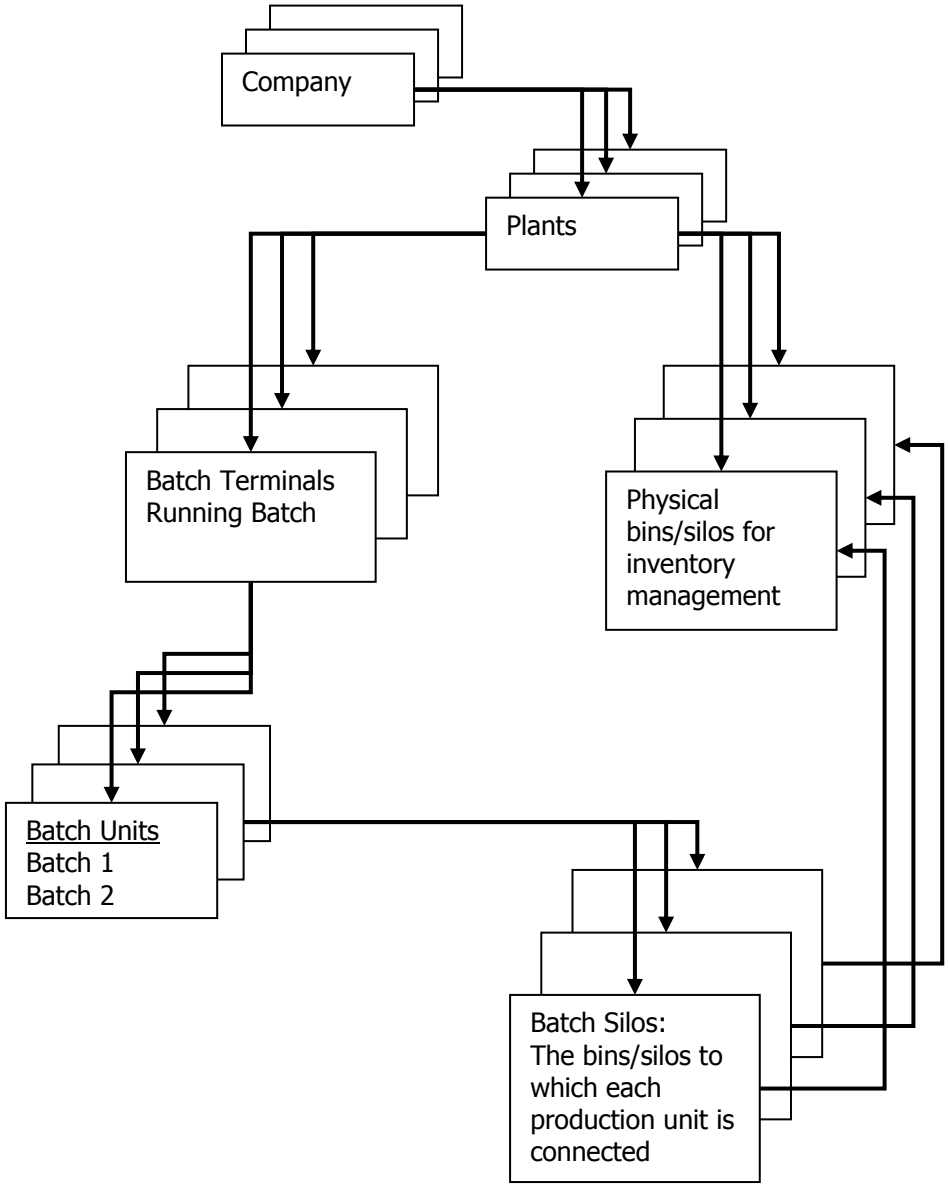
System Logical Structure:



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Customization Tools

The CE products suite has powerful tools to allow you to configure the systems to suite your needs.

1. Menu designer and role definition: this tool enables the systems administrator to define menus (roles) and to assign each user with a default menu and alternate roles that the user can switch to. This feature gives each user easy access to his most frequent activities and creates a user friendly security system. Users just don't see what they don't have access to.
2. Batch operation builder: The system administrator can define scripts that perform specific tasks and attach them to menu items to give users easy access to execute those tasks. The predefined canned operations eliminate the need to external tools to allow users to do certain tasks. The scripts can reduce the need for training since some operations that require some knowledge can be capsulated in a script and create a friendlier user experience.
3. Import/Export designer: this tool enables the definition of almost any data conversion from the CE database and to the CE database. With the external database feature this tools becomes extremely powerful and allow the transfer of data between systems. The system also allows the export of data in XML files for usage in other environments.
4. Tables designer: A powerful grid/form generator is in the core of the CE system, many of it's data views are configurable so the user can see the data he really needs, this can be tailored to the user level. The system administrator can create and expose more types of data views to the users using data from the CE database and from foreign databases. This tool allows the definition of infinite drill down capabilities to allow the user to drill into the data he needs to investigate.

Report generator: a WYSIWYG report designer allow the definition of reports for each data view, the reports can be generated as printable output, text files, HTML files and PDF files.

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Frequently Asked Questions

Q: I have invoiced a customer for several tickets, and then I manually entered some more tickets in the same period. Can the invoicing program be run twice on the same period?
A: Yes it can; invoiced tickets will not be included in the second invoicing process.

Q: I have invoiced a customer and now I have changed the prices in the contract; can I use the Ticket Recalculation module to change the prices?
A: NO. After the ticket is invoiced, the system will not change the price but you can cancel the invoice (this operation will return the tickets to pre-invoiced status), recalculate and then make a new invoice for the same period.

Q: I have several customers who want to have a different invoice print format; can I do this?
A: YES, each customer can have a different invoice print format which is user defined.

Q: Can I create an invoice print format with a summary for each product in order to have an invoice on one page and an appendix with a list of all the tickets related to this invoice?
A: YES, you can have up to three different lists in one invoice print format.

Q: I have a customer with two daughter companies, both of which are my customers. They want the tickets to be issued to the daughter companies, billing to go to the mother company, Is it possible?
A: YES, just enter the mother company code into the "Main Customer Code" field in the daughter company data.

Q: Can I combine online plants with semi online plants?
A: Yes, one head office system can support both types of plants.

Q: What happens with semi online plants when the communication line is down?
A: The plant system will continue with full functionality, but without receiving and sending updates to/from the head office. All updates are done automatically when the link is running again.

Q: What databases can I use?

A: Any database with SQL/ODBC interface can be used; we guarantee the system with either ORACLE or MS-SQL.

Q: If I have an accounting system running on a different database is it possible to have reports that combine data from the LIADSOFT and the accounting system?
A: Yes, the LIADSOFT report generator can access any SQL/ODBC database.

Q: What type of communication do I need?
A: Standard TCP/IP links with FTP server in the head office.

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Q: Most accounting systems generate text (ASCII type) files. Can LIADSOFT access them?

A: Yes, LIADSOFT can import any type of ASCII file.

Q: Can the actual batch operation of a specific plant be remotely monitored from the head office?

A: Because the driver between the LIADSOFT batching system and the Batch controller interface is based on TCP/IP protocol our remote monitor software can monitor the batching units from the head office.

Q: Can LIADSOFT manage manual loads?

A: Yes, when changing the system to manual operation the batcher can enter the actual quantities in the edit boxes on the batching form.

Q: for the same project, can I have one distance for charging my customer and a different distance for paying my hauler?

A: YES, on the site (project) data you can define different distances for the hauler and for the customer.

Q: A truck breaks down after is loaded. Can I transfer this load information to another truck?

A: Not yet, but we will have it in the near future.

Q: Is it possible to change the price in a customer's contract at the end of the month and have the change take effect from the middle of the month?

A: Yes, when creating a new version of the prices in the contract, enter the date when you want the new price to take effect. After doing so, run the recalculate program to recalculate the price of the uninvoiced tickets.

Q: Can I have several contracts for the same customer?
A: Yes, you may have as many as you like, but you can have only one contract per site (project).

Q: Can I set different payment terms for different products without the need of a new contract?
A: Yes, the payment terms may be defined for each product/plant.

Q: How is the selling price calculated; by mix design or by actual ingredient values?

A: The selling price is calculated by the customer's contract based on the price list in the contract. The selling price has nothing to do with the ingredients in the mixture; if the concrete plant can produce concrete at lower cost, it allows for more profit. The actual cost of the ticket (load) is calculated from the costs of the ingredients if they exist and from the batch ticket if there is no data on the actual ingredients. The ticket's cost is used for the gross profit calculation.

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