



# The Orange Furniture Company



— *An Eight-Week Exercise Using Qube ERP* —  
An Enterprise Resource Planning System for  
Small to Mid-Size Manufacturers and Distributors

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## 1. Background

*January 2002.* The Orange Furniture Company manufactures and sells tables and chairs. The company's offices, showroom, and 30,000 square foot factory and warehouse are housed in a single building at 307 S. Townsend Street in Syracuse, NY. Chairs are manufactured at the company factory whereas tables are purchased from a supplier. OFC's 2001 revenues were approximately \$3 million with 80% of sales through catalog orders. The balance of sales comes from the factory showroom and nine independent retailers located in New York, Massachusetts, Connecticut, and Maine, and Florida. Revenue growth during the last two years has been explosive, with an average annual increase of nearly 70%. This is due to a combination of effective marketing<sup>1</sup>, a reputation for short and reliable lead times, a wide selection of chairs, and quality product. The wide selection stems from the combination of different feature choices. A living room chair, for example, will be available in three types of wood, with or without arms, four wood finishes, four fabrics, and seven fabric colors, resulting in 672 possible combinations.

The key to OFC's reputation for short and reliable lead times is AJ Sterling, the plant manager. AJ has been with the business since its founding in 1985. He has a thorough understanding of factory operations and he has a talent for keeping track of an amazing amount of information in his head. These characteristics have served him well in accurately estimating lead times and keeping orders on schedule. However, due to high growth, the task is becoming unmanageable. This, combined with the inefficiency of the largely manual book-keeping and financial planning activities, have led to OFC's decision to implement Enterprise Resource Planning software, and in particular, Qube ERP.

## 2. The Task at Hand

The rest of this paper provides the essential information for an exercise on the implementation and use of Qube ERP at OFC. The objective is to provide an in-depth understanding of ERP software through hands-on experience in initial setup, day-to-day transaction processing, and planning activities with one particular ERP package. Many of the insights gained from working with Qube ERP apply to other ERP systems in the market.

In addition to this note, the following materials are required for the exercise (available on our class website).

- Qube ERP software, data files, and a user's manual
  - The data files are Orange.dfl and a collection of Excel files that contain data to be loaded into Qube ERP
  - The user's manual is a 14-volume document available as a set of pdf files
- *The Qube ERP Guided Tour* (available as a pdf file)

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<sup>1</sup> The catalog sales channel was established in 1999. In March of 2001, OFC set up a company website with an online catalog and Internet orders now make up over 20% of customer-direct shipments.

The rest of this note is organized into four sections. First, the product line is described. Second, the basic steps required to manufacture a chair are outlined. Third, the steps of the exercise are specified. The last section contains answers to *frequently asked questions*.

### 3. The Product Line

*The offerings.* OFC manufactures three basic styles of chairs. The 700 series is a classic dining room chair. The 800 series and 900 series, both with a well-padded cushion on a wood frame, are referred to in the trade as *fine living room* furniture. The 800 series is very traditional in its styling while the 900 series is of more contemporary design. Each chair can be configured according to a number of options. The company also offers dining room tables that are built by a trusted supplier.

The 700 series chair is offered in 72 possible configurations:

Wood: (1) black walnut, (2) cherry, (3) oak

Arms: (1) with or (2) without

Finish: (1) natural low finish, (2) natural high finish<sup>2</sup>, (3) medium stain low finish, (4) medium stain high finish

Seat: (1) wood, (2) natural reed, (3) dark reed

The 800 series chair is offered in 672 possible configurations:

Wood: (1) black walnut, (2) cherry, (3) oak

Arms: (1) with or (2) without

Finish: (1) natural low finish, (2) natural high finish, (3) medium stain low finish, (4) medium stain high finish

Fabric: (1) cotton coarse weave, (2) cotton fine weave, (3) nylon/cotton blend coarse weave, (4) nylon/cotton blend fine weave

Color: (1) tan, (2) white, (3) brown, (4) red, (5) blue, (6) tan/white/brown pattern, (7) red/blue pattern

The 900 series chair is offered in 672 possible configurations:

Wood: (1) black walnut, (2) cherry, (3) oak

Arms: (1) with or (2) without

Finish: (1) natural low finish, (2) natural high finish, (3) medium stain low finish, (4) medium stain high finish

Fabric: (1) cotton coarse weave, (2) cotton fine weave, (3) nylon/cotton blend coarse weave, (4) nylon/cotton blend fine weave

Color: (1) tan, (2) white, (3) brown, (4) red, (5) blue, (6) tan/white/brown pattern, (7) red/blue pattern

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<sup>2</sup> A *high finish* gives the wood a glossy appearance.

The 7000 series table is offered in 6 possible configurations:<sup>3</sup>

Wood: (1) black walnut, (2) cherry, (3) oak

Finish: (1) natural low finish (black walnut or cherry only), (2) natural high finish (black walnut or cherry only), (3) medium stain low finish (oak only), (4) medium stain high finish (oak only)

*Item codes.* OFC assigns end item identification codes for stocked chairs according to the following simple scheme. The first three characters define the type of chair and the successive two character groups define the option choices. For example, 700W2A1F1S1 is interpreted as a 700 series chair with wood option #2, arm option #1, finish option #1, and seat option #1. In other words, model 700W2A1F1S1 is a cherry dining room armchair with a natural low gloss finish and a wood seat. Item codes for tables follow a variation on this scheme where acronyms instead of numeric codes are used to indicate options. A 7000TBL/NLF/W, for example, refers to the natural low finish walnut table.

*The stocking policy.* OFC maintains finished stock of their most popular models. A stocked item is viewed to be *on-time* if it is shipped within three days of the order. Approximately 1% of the product line is stocked and these models generate about 40% of sales. Finished goods inventory is maintained for the following option combinations:

- 700 series (2 models): cherry, arms, natural low finish, wood seat; oak, arms, medium stain low finish, wood seat
  - 700W2A1F1S1, 700W3A1F3S1
- 800 series (6 models): cherry, arms, natural low finish, nylon/cotton blend fine weave, white or brown or tan/white/brown pattern; oak, arms, medium stain low finish, nylon/cotton blend fine weave, white or brown or tan/white/brown pattern
  - 800W2A1F1F4C2, 800W2A1F1F4C3, 800W2A1F1F4C6, 800W3A1F3F4C2, 800W3A1F3F4C3, 800W3A1F3F4C6
- 900 series (6 models): cherry, arms, natural low finish, nylon/cotton blend fine weave, white or brown or tan/white/brown pattern; oak, arms, medium stain low finish, nylon/cotton blend fine weave, white or brown or tan/white/brown pattern
  - 900W2A1F1F4C2, 900W2A1F1F4C3, 900W2A1F1F4C6, 900W3A1F3F4C2, 900W3A1F3F4C3, 900W3A1F3F4C6
- 7000 series (2 models): cherry, natural low finish; oak, medium stain low finish
  - 7000TBL/NLF/C, 7000TBL/MLF/O

All other models of chairs are assembled-to-order and all other models of tables are purchased-to-order. OFC must forecast and maintain sufficient raw materials in order to achieve their order-to-shipment lead-time target of two weeks on the non-stock models. This lead-time target applies to chairs only; black walnut tables are the only non-stock table models and it takes about 12 weeks for the supplier to manufacturer and deliver the product to OFC.

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<sup>3</sup> These tables are built by the Stickley Company according to OFC's design and specifications.

Non-stock models are not assigned model identification codes prior to order placement. For example, when a customer orders a cherry dining room armchair with a low gloss finish over a medium stain and a natural reed seat (i.e., a non-stock item), a special bill of material is created for this option combination and the model is identified through the parent item code (i.e., '700' in this case) and the unique customer order number. In this way, the system only maintains detailed bill of material information on the 14 stocked manufactured items (i.e., 2 700 series, 6 800 series, and 6 900 series); model identification and bill of material information for other option combinations are generated on an as-need basis. This feature is very helpful for streamlining data requirements in businesses that provide many different end-items through combinations of alternative options.

*The sales channels.* Approximately 15% of year 2001 sales were through the following independent furniture retailers.

- Bender's Furniture, Buffalo, NY
- Clifton Manor, Boca Raton, FL 30993
- Cobbs' Interiors, Portland, ME, Bar Harbor, ME
- DeMuro's, New York, NY
- Hsieh Fine Designs, Boston, MA, Worcester, MA
- Lou's Place, Pittsfield, MA
- Waite, Inc., Hartford, CT

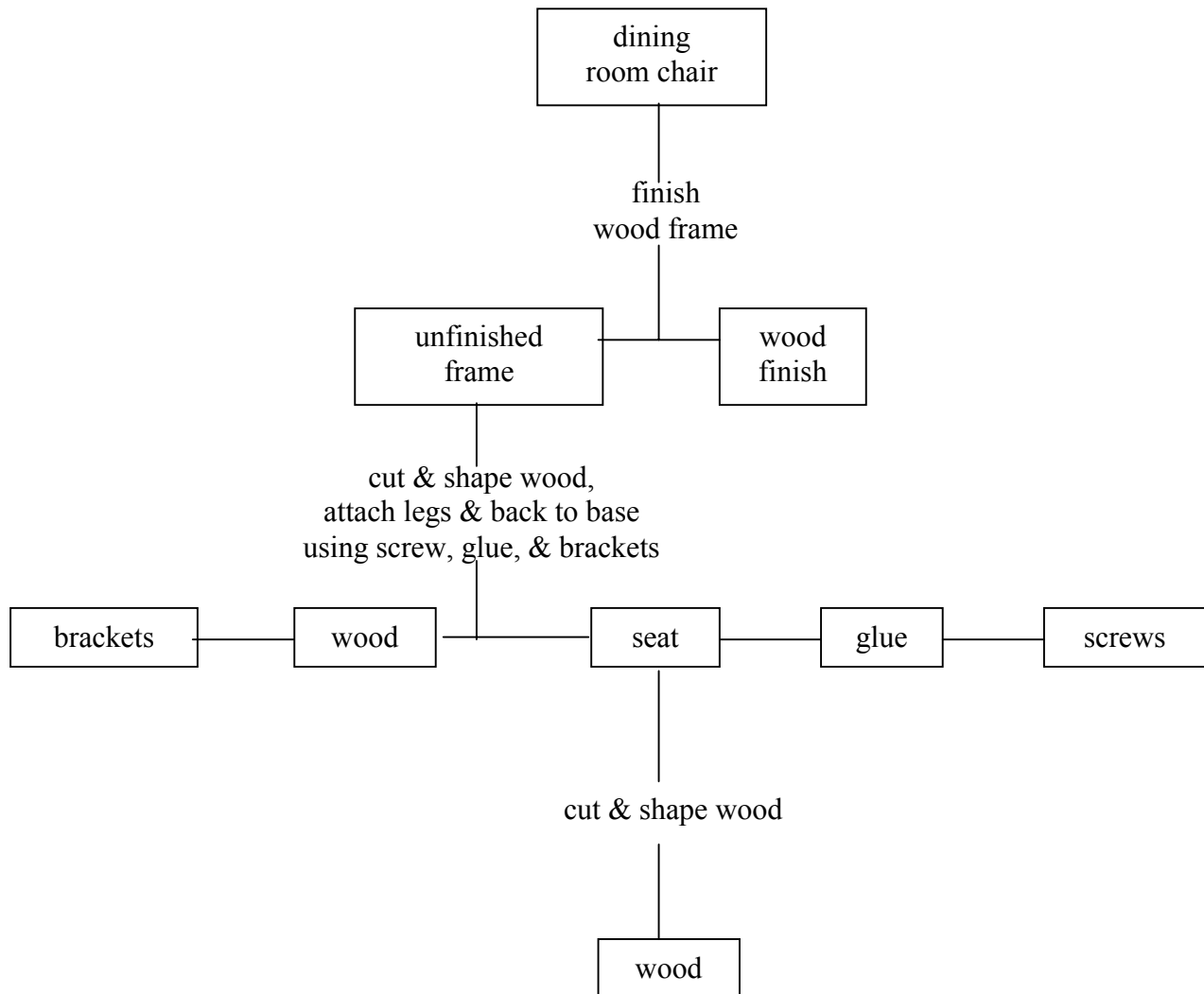
Approximately 5% of year 2001 sales were through the factory showroom in Syracuse with the balance of sales through mail, phone, and Internet orders. OFC estimates that catalog orders (mail, phone, and Internet) have been shipped to over 1,000 different customers since the catalog sales channel was introduced in 1999, though they are just beginning to carefully record information on each customer.

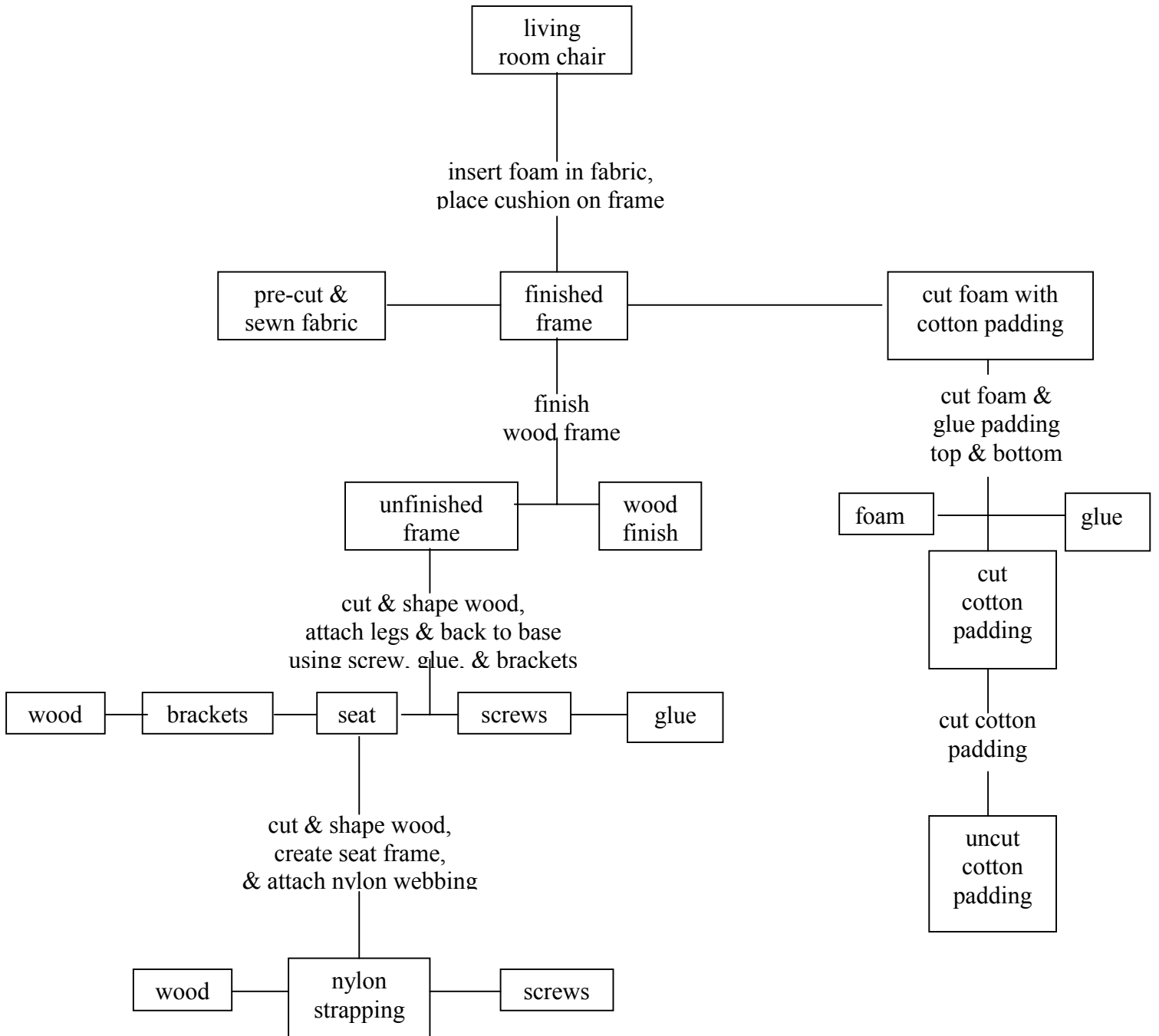
*The vendors.* OFC purchases hardware, glue, wood finishes, wood, reed seats, tables, and upholstery materials from the following vendors.

<b>Vendor</b>	<b>Products</b>
Callahan Services, Inc. 15 Callahan Lane Charlotte, NC 23705	Reed
Camelia Inc. 1205 Bloomfield Avenue New York, NY 10012	Foam, cotton padding, nylon strapping
Karolesky Fabric Supply 333 Pearl Avenue Syracuse, NY 13202	Pre-made seat covers
Karsonovich & Sons 12 Washington Street Utica, NY 13018	Foam, cotton padding, nylon strapping, fabric glue
McLeavey Industrial Supply Division 101 Southwest Avenue Rochester, NY 12998	Brackets, screws, wood glue, wood, wood finish
Stickley Furniture Company 101 Stickley Drive Manlius, NY 13104	Tables
VanDerhoof Industries 345 Hotelling Street Binghamton, NY 13863	Brackets, screws, wood glue, wood, wood finish, foam, cotton padding, nylon strapping, fabric glue

## 4. The Manufacturing Process

The following figures illustrate the typical subassemblies, raw materials, and tasks associated with manufacturing dining room and living room chairs at OFC.







## 5. The Exercise Steps

We will use italics to identify specific Qube ERP (QE) windows in the following discussion. For example, to get to the window *Inventory + BOM - Item Master - Card #1*, you would open the inventory + BOM functions, find the item master from among the list of choices, click on this choice, then select the tab labeled card #1.

### Stage 1 – Initial Design and Transaction Processing

*Week 1.* The first week focuses on becoming familiar with QE basics and on a few initial design decisions. Teams will first work through the tutorial. You may this quickly (e.g., about 1 hour) without worrying about gaining a detailed understanding of what is going on. The learning objective is to begin to get comfortable navigating through various screens of the system. Follow the tutorial in the *Guided Tour* book through page 60. Select **GuidedTour.dfl as the data file** when you work through the tutorial.

#### Loading Excel data

After going through the tutorial, the next step is load the data into the system on vendors, customers, and products. This information is stored in 5 Excel files: Vendor.xls (vendor data), Customer.xls (customer data), IMaster.xls (item master data), BOM.xls (bill of material data), Routings.xls (routing data). The first step is to make a hard copy of these 5 files. Quickly review the Excel reports to try to get a rough sense of the information that will be loaded into the system. After printing out the Excel files, you may proceed with importing the data into QE. The details of how to do this are outlined in Section 6.

A word of caution - the process of defining the fields prior to import can be a little tricky. Make a good effort, but don't worry too much if you make some errors. The main learning objective for this part of the exercise is to understand how you can populate the QE database with all sorts of different information (e.g., by selecting the fields to be populated and creating an Excel spreadsheet with this data).<sup>4</sup> I will provide an updated Orange.dfl file with the Excel data already imported prior to week 2; in this way all teams will begin the transaction processing phase of the exercise with the same database.

#### Design Decisions – Group Code, Customer Type, Vendor Type

Once the data are loaded, you'll need to consider a few initial design decisions and enter the information reflecting these decisions. The decisions pertain to the values of three fields that impact how data may be consolidated and reported. The three fields and the steps to follow are described below.

Design issues are an important part of ERP system implementation, simply because there is so much flexibility in specifying how an ERP system will work at an organization. The learning objective for this part of the exercise is to highlight, albeit on a limited scale, this element of ERP implementation.

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<sup>4</sup> This is normally what happens when QE is implemented at an organization, i.e., relevant company data is loaded into Excel files and then transferred into QE.

A word of caution – defining and assigning all of the codes in QE can be time consuming. While I would like you to enter all of the codes you will be using and enter all of the assignments to these codes, it is acceptable to define and assign only a few in each of the 3 categories. The purpose is to learn the basic mechanics of setting up the codes. As noted above, I will provide an updated Orange.dfl file prior to week 2 of the exercise. This file will be set up with codes defined and assigned.

Field #1: Group Code

This code is up to 12 alphanumeric characters and appears in the *Inventory + BOM - Item Master - Card #1* window. The group code is useful for reporting total sales of chairs and tables separately without the need to break out different sales sub-accounts in the chart of accounts (i.e., the total dollar amount in a given sales account in the general ledger can be reported by group code). Group codes need to be established in the *Inventory + BOM – Item Master File Utilities – Group Codes* window before they can be referenced in the *Item Master*.

Your task is to first decide what sort of product summary level sales and cost information you think would be helpful. There are 14 make-to-stock items (i.e., 700W2A1F1S1, 700W3A1F3S1, etc.), 6 resale items (i.e., 7000TBL/NLF/W, 7000TBL/NLF/C, etc.), and 3 “parent,” or make-to-order, items (i.e., 700, 800, and 900) that must be assigned group codes. The 23 end items are denoted by “FIN” (stands for a finished manufactured item) or “RES” (stands for a resale item) in the “Item Type” column of your IMaster.xls spreadsheet. These 23 products need to be categorized into reporting groups. For example, management could be interested in being able examine relative performance among chairs and tables, in which case the 23 end items would each be classified into either the chair group or the table group. Of course, there are many other reasonable possibilities for categorizing the product line. Once you decide how you want to group these 23 items, define a code for each group (presumably based on a coding scheme that is transparent, or easy to interpret). At this point you’re ready to enter the codes into the QE database and then assign each of the 23 items one of these codes. To enter the group codes, go to *Inventory + BOM – Item Master Setup & Utilities – Group Codes*. After clicking the edit button, you may enter a code followed by a description. As you

continue to tab through (ignoring the “cost multiplier” field), a new row will appear and you may enter another code and description. Make sure to save after entering the group codes. After closing the window, you may wish to open *Inventory + BOM – Item Master Setup & Utilities – Group Codes* again just to make sure all your codes are in the system.

continue to tab through (ignoring the “cost multiplier” field), a new row will appear and you may enter another code and description. Make sure to save after entering the group codes. After closing the window, you may wish to open *Inventory + BOM – Item Master Setup & Utilities – Group Codes* again just to make sure all your codes are in the system.

Once the group codes are in the system, you are ready to assign a code to each of the 23 items. Go to *Inventory + BOM - Item Master - Card #1* and bring up an end item record (see screenshot above). Notice that the “Group” field is blank. Click the edit button, tab

to the “Group” field, hit *Cntl*+/ *and bring up the list of group codes you entered, then double click on the group code to be assigned to the end item. Repeat this process for each of the 23 end items.*

### Field #2: Customer Type

This code is up to 6 alphanumeric characters and appears in the *Order Entry – Customer Master File – Customer Basic Info* window. The customer type field is used to track sales and receivables by sales channel (e.g., Internet/catalog sales, showroom sales, and retailer sales). The customer type codes must first be established in the *Order Entry – Setup & Miscellaneous Functions – Customer Types* window before they can be referenced in the *Order Entry – Customer Basic Info* window. The only fields that need to be populated are the customer type and description. The remaining fields may be left blank. There is reference to vendor information in this window because customer and vendor types share the same file.

As in the case of end items, your task is to decide how you would like to be able to summarize customer sales and profit information, define customer type codes, enter the codes and descriptive information in the *Order Entry – Setup & Miscellaneous Functions – Customer Types* window, and assign each customer to a customer type code in the *Order Entry – Customer Master File – Customer Basic Info* window. There are 11 customer codes that must be assigned to a customer type (i.e., 9 independent retailers, showroom, and Internet/catalog). While the specific windows where data are entered are different from the windows used for entering and assigning group codes, the mechanics are similar.

### Field #3: Vendor Type

This code is up to 6 alphanumeric characters and appears in the *Purchasing – Setup Functions – Vendor Master* window. The vendor type field is useful for tracking purchases of various types of raw materials. Vendor types need to be established in the *Purchasing – Setup Functions – Vendor Types* window before they can be referenced in the *Purchasing – Setup Functions – Vendor Master* window. The only fields that need to be populated are the vendor type and description.

As with your customers, your task is to decide how you would like to track summary level raw material information, define vendor type codes, enter the codes and descriptive information in the *Purchasing – Setup Functions – Vendor Types* window, and assign each vendor to a vendor type code in the *Purchasing – Setup Functions – Vendor Master* window. There are 7 vendors that must be assigned to a vendor type. Information in the vendor table from Section 3 will be helpful as you consider how to group the vendors. While the specific windows where data are entered are different from the windows used for entering and assigning group codes, the mechanics are similar.

### Updating pop-up lists

This and the next 2 steps involve some “switch flipping” to prepare your system for transaction processing. The learning objective is to provide understanding of some setup issues that may arise in ERP implementation.

In order for the “pop-up” lists to reflect the new information on customers, vendors, etc., you will need to go through a step that updates these lists.<sup>5</sup> Go to *System Admin – Maintenance Functions – Update Pop-up Lists*. From this window, click the button “Select and Update Lists all at Once.” This puts you into edit mode. You can check the boxes corresponding to the pop-up lists you wish to update. You may check all the boxes, then hit the “save” button. You could repeat these steps periodically in the future as customers, vendors, or products are changed. However, for day-to-day use, the simpler option is to not use pop-up lists, but use the reference list (activated via *Ctrl+ /* as discussed in the footnote).

#### Preparing the sales order configurator

OFC’s product line is made up of 1412 end items. Less than 1% of these are made-to-stock. The rest are made-to-order based on the options selected by a customer. The sales order configurator allows one to create a sales order by selecting various specific options (e.g., as is the case with Dell Computer). There are a few steps to set this up once the data have been loaded from the Excel files. Go to *Inventory + BOM – Bill of Material Utilities - Reconstruct BOMs*. Click on “Select Rebuild Choices.” You will now be in edit mode. For the “Roll-up Method,” select “Best for indented BOM.” For “Reconstruct these values,” select all 4 boxes (i.e., Standard Costs, Current Costs, etc.). Then hit “save.” Finally, click on “Reconstruct BOMs Only.” This will take about 1 minute . . . a good time to stand up and stretch.

Once the reconstruction is done, go to *System Admin – Setup Functions – System Setup Card #1*. As you look at this window, you’ll see that this is where some of the basic system options are set. For example, the box corresponding to “Enter Orders Using Option Selection Window” should be checked (meaning that the sales order configurator option is turned on).

#### Updating standard costs with current costs

When purchased items are received and costs recorded, actual costs are compared to a *standard cost*. Differences between actual costs and standard costs are posted to a purchase price variance account in the general ledger. Standard costs are initialized at zero. When you reconstructed the BOM in the previous step, the standard costs in the system were updated to the costs contained in the item master file. In order to have these standard costs picked up when posting to the general ledger, you need to go to *General Ledger – General Ledger Setup Functions – Inventory Standard Costs*. (Note: *Inventory Standard Costs* may not appear when you click on the general ledger button. Therefore, in order to go to *General Ledger – General Ledger Setup Functions – Inventory Standard Costs*, you can either select from the General Ledger menu at the top of the main system window, or click the left mouse button next to the “Group Name” at the top of the

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<sup>5</sup> A pop-up list, which was illustrated in the tutorial, appears whenever you click on a yellow button with a magnifying glass that appears next to a data entry field on a window. For example, the pop-up list next to where a customer code is entered would contain a list of all the customers in the system since the pop-up list was last updated. This is in contrast with data in *Actions – Reference Lists* that is updated in real time. Hitting *Ctrl+ /* when in an edit box will activate the reference list and bring up choices from which to select. Using reference lists is generally preferred to pop-up lists due to real time updating.

*General Ledger Functions* window that appears when you click the General Ledger button). Once you get into *General Ledger – General Ledger Setup Functions – Inventory Standard Costs* (see screenshot below), click the “Edit All” button to update standard costs. Answer “yes” to “Update standard costs for all items in the item master?” and answer “yes” to “Copy current standard costs into unposted inventory – payables transactions?”

The 1 page memo

During second week of this exercise, each team will submit a one-page memo that identifies and gives rationale for their design decisions. The memo should include

- the list of the 23 products each assigned to a group, the up-to-12 character code for each group, and a brief explanation of the logic behind your product grouping decisions;
- the list of the 11 customers each assigned to a customer type, the up-to-6 character code for each customer type, and a brief explanation of the logic behind your customer grouping decisions;
- the list of the 7 vendors each assigned to a vendor type, the up-to-6 character code for each vendor type, and a brief explanation of the logic behind your vendor grouping decisions.

**Inventory and Labor Posting Costs**

Item Code: 7000TBL/NHF/W  
 7000 Series Table/Natural High Finish/Walnut

Std Costs Updated on: [ ] By: S Employee

Type: RES P Purchased  Active

	Current Unit Costs	Standard Unit Costs
Material	\$ 780.00000	\$ 0.00000
Freight In	\$ 0.00000	\$ 0.00000
Overhead as % Material	\$ 0.00000	\$ 0.00000
Outwork	\$ 0.00000	\$ 0.00000
Labor	\$ 0.00000	\$ 0.00000
Overhead as % Labor	\$ 0.00000	\$ 0.00000
<b>Total Unit Cost</b>	<b>\$ 780.00000</b>	<b>\$ 0.00000</b>
Overhead applied to Material =	0.000%	0.000%
Overhead applied to Labor =	0.000%	%


Buttons: Print, Edit All, Update Unposted Transactions, Edit Zero Standard Cost Purchased Items, Edit Standard Overhead Rates

*Week 2.* The learning objectives for the second week are to understand how to process customer and purchase orders and to understand the impact of these basic transactions on the system. An important word of caution: **periodically back up your data file** (e.g., after processing a set of transactions). This way, if you run into problems or make mistakes, you can always revert back to an earlier version of the QE database.

Begin by downloading ‘Orange2.dfl’ from our website, and set this as your data file when starting up QE (i.e., click the Change Data File button and select Orange2.dfl). This file reflects all of the steps from week 1 activities, i.e., the database has been populated, grouping codes have been defined and assigned, and various initialization switches have been set. I’ve also added an inventory transaction so that you have 20 units each of: 700W2A1F1S1, 800W2A1F1F4C2, 800W3A1F3F4C3.

Step 1 – Enter customer and purchase orders

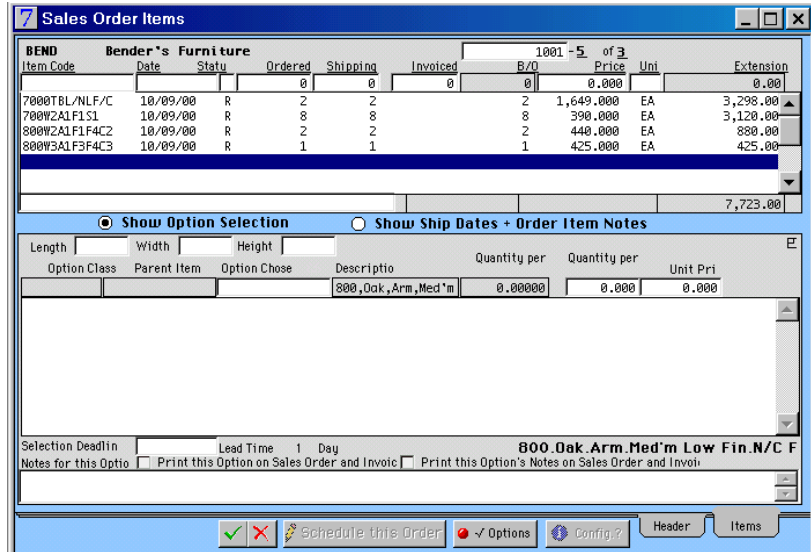
Bring up the QE system with the new ‘Orange2.dfl file. The first step is to enter the following four customer orders and four purchase orders (you may wish to review the *Guided Tour* tutorial to refresh your memory on the screens used for these transactions). As you do this, try experimenting with the reference list when in edit mode and the cursor is in an edit box. Hit *Ctrl+ /* and a list of choices will be displayed. You may then click on the code to be entered in the edit box. This can be a time saver, especially as the database gets large and it becomes difficult to recall the various codes.

To enter a customer order, go to *Order Entry – Sales Order Functions – Sales Order Header*. Click on the  to indicate that you are entering a new customer order. At this point, you may place your cursor in the “Bill To” field, and type *Ctrl+ /* to see a list of customers. Double click on “Bender’s Furniture.” When you do this, “BEND” should appear in the field. You may then tab to the next field, and the sales order header window will be populated with all of the default data on this customer. Make sure to enter the “Requested Ship Date” under the “Ship To” information as the current date plus 1 day. (see screenshot).

You may then click on the “Items” tab at the bottom of the window and enter the information on the items ordered (see screenshot). At this point, all of the information on the customer order has been entered, and you may now save the order. If you see you made a mistake, you may go back and edit the order.

<u>Customer</u>	<u>Item Code</u>	<u>Quantity</u>	<u>Requested Ship Date</u>
Bender's Furniture <sup>6</sup>	7000TBL/NLF/C	2	current + 1 day
	700W2A1F1S1	8	current + 1 day
	800W2A1F1F4C2	2	current + 1 day
	800W3A1F3F4C3	1	current + 1 day

The remaining three customer orders are all for new customers. You'll add address information on these customers to the customer master file (e.g., so that if they order in the future, you can pull up their record just as we did with Bender's Furniture). Go to *Order Entry - Customer Master File - Customer Basic Info* and create



three records with addresses for the three customers (i.e., Laich, and Woodward & Ruby, Buckley). When entering the "Bill To" address, there is no need to enter "Ship To" information unless it is different; the "Bill To" information will be copied "ship to" when you save the record. Once the customers are added to the customer master file, you may enter the orders just as you did with Bender's Furniture. Remember to enter the "Requested Ship Date" under the "Ship To" information on the "Sales Order Header". For the Buckley order, make sure to specify the requested options for the 800 SERIES CHR.

<u>Customer</u>	<u>Item Code</u>	<u>Quantity</u>	<u>Requested Ship Date</u>
Jim Laich	7000TBL/NLF/C	1	current + 1 week
626 Forest Avenue	700W2A1F1S1	8	current + 1 week
Northbrook, IL 60179			
(Internet order, credit card)			
Woodward & Ruby Law Office	7000TBL/NLF/C	1	current + 1 week
15711 Esquire Blvd			
New York, NY 01128			
(phone order, credit card)			

<sup>6</sup> Multiple line items are entered on a customer order by continuing to "tab" through the fields; when you hit the tab key on the last field for a line item on a sales order, a new line will appear.

Customer	Item Code	Quantity	Requested Ship Date
Jennifer Buckley 2120 Spice Lane Boston, MA 02110 (mail order, credit card)	800 SERIES <sup>7</sup>	2	current + 4 weeks

In order to enter a purchase order, go to *Purchasing – Purchasing Functions – Purchase Order Header*. The mechanics of entering a purchase order are similar to the mechanics of entering a customer order (e.g., see screenshots of the Stickley P.O. header and item windows below).

Vendor	Item Code	Quantity	Sched'd Rec. Date
Stickley	7000TBL/NLF/C	12	default

<sup>7</sup> Jennifer requests the following options: A800-WALNUT, N/C FINE-WHT, FIN-NATL/LOW, FR800-WALNUT. Hit *Ctrl+/* to see the list of choices when in the “Option Chosen” field. Note that the item number in the item master for this product is 800 SERIES CHR.



Vendor	Item Code	Quantity	Sched'd Rec. Date
McLeavey ISD	GLUE-WOOD	50	default
	SCREWS	4	default
	BRACKETS	10	default
	FIN-NATL/LOW	100	default
	FIN-MED/LOW	100	default
Callahan Services	REED-DARK	5	default
	REED-NATURAL	10	default
VanDerhoof Industries	WD-CHRY,1X8X12	36	default
	WD-CHRY,2X6X12	36	default
	WD-OAK,1X8X12	36	default
	WD-OAK,2X6X12	36	default

### Step 2: Print your chart of accounts

- You'll need to be familiar with the chart of accounts in order to assess whether proper accounts are being hit for the various transactions you'll be processing. To create a hard copy of OFC's chart of accounts, go to the *General Ledger* menu at the top of the main window (i.e., not the *General Ledger* button).<sup>8</sup> Select "Chart of Accounts" from the menu list. Go to *File* menu at the top of the main window and select "Print chart of accounts" from the menu list. Further information on how to print can be found in Section 6. Keep the chart of accounts for your reference.

### Step 3: Record receipt of product, draft vendor invoices, and update the general ledger

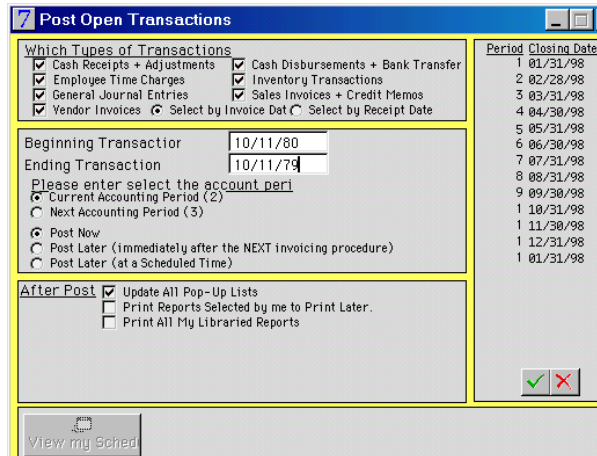
- The raw materials from all four vendors have just arrived. You need to record receipt of the product, draft vendor invoices, and post to the general ledger. In order to record receipt of the product, go to *Purchasing – Receiving Functions - P.O. Receipts*, click the green "+" sign, key in the purchase order number (or hit *Ctrl+/* and select from the list), select "Default Quantities to Full Amount," and hit the enter key. At this point the purchase order item quantities should appear in the window and you can save the transaction. Do this for each of the vendor P.O.'s (i.e., Stickle, McLeavey, Callahan, VanDerhoof).
- Now that you recorded receipt of the product, you'll have to draft vendor invoices. Go to *Purchasing – Purchasing Functions - Purchase Order Items*, and find the Stickle P.O. (you'll need to do this step for each vendor). Click on the "Draft Vendor Invoice" button. Make up an invoice number and select the "Use

<sup>8</sup> Alternatively, click the *General Ledger* button, then double click just above the folder in the top left of the window. This will expand the list of general ledger functions, one of which is "Chart of Accounts."

Quantities Received” and “Default Quantities to Full Amount” radio control buttons. Hit the enter key and the dollar amounts for the purchased items should appear in your window. If everything looks ok, hit the save button (see screenshot). When prompted, answer “yes” to “Draft invoice for selected items on the P.O.?”

- By drafting the vendor invoices, you are formalizing what you owe each vendor (the amounts could be different for the purchase costs stored in the database, in which case you would edit the costs during the “draft step”). You are now ready to update accounts payable for the amounts you owe the vendors. Before posting to the ledger, examine the trial post reports.<sup>9</sup> Go to *General Ledger Reports* and look at all of the trial post reports (six in total). All reports should be empty except for *Trial Post Inventory Transactions* and *Trial Post Payables*. When you bring up the *Trial Post Inventory Transactions* and *Trial Post Payables* reports, tab down and answer “yes” to “Print Detail of Each Transaction?”

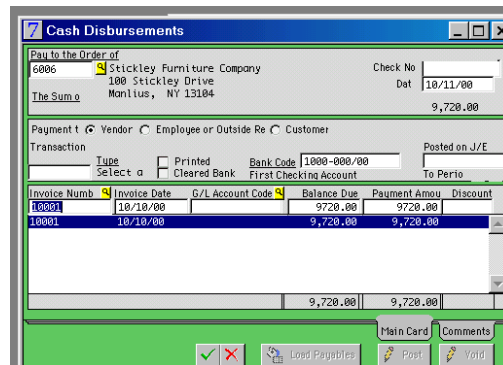
Create a hard copy of both of these reports.<sup>10</sup> Assuming the trial post reports appear in order, go to *General Ledger – Posting & Closing - Post Open Transactions*. Specify the date range of transactions (i.e., select a time window that spans your transactions – 10/11/1980 to 10/11/2079 in the screenshot), and select all types of transactions (from your trial post reports you know that only inventory and payables



transactions will be posted), and post to general ledger (see screenshot). After posting, go to *General Ledger – General Ledger Transactions - Journal Entries* and verify that the two most recent entries are consistent with the information on your trial post reports (you can scroll through all of your J/E’s by clicking the green arrows at the bottom of the window). Print out a hard copy of the two journal entries (i.e., type *Ctrl+P* when the J/E you wish to print is displayed) and attach to the trial post reports. Staple the trial post and journal entries together and label as report #1.

#### Step 4: Pay the vendors and update the general ledger

- It’s now time to pay the four vendors. Go to *Payables – Payment Transactions - Cash Disbursements* and click the “+” icon to add a record. Type in a vendor code (or select a vendor from the reference list), type in the invoice # (or select from the



<sup>9</sup> Trial posting is a way to review journal entries that are ready to be posted. It is commonly done prior to actual posting in the general ledger.

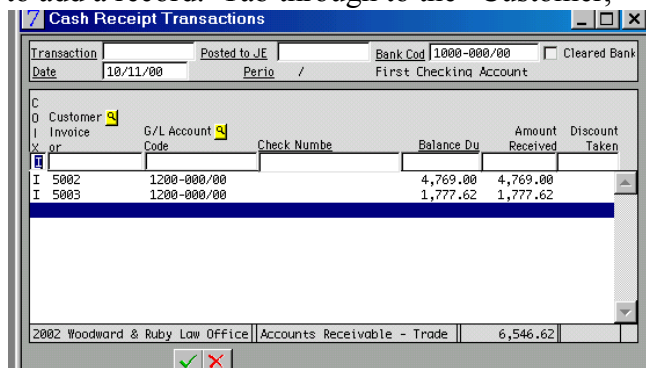
<sup>10</sup> **A printing suggestion:** I prefer to print to the screen first, just to see what I have. If you do this, you’ll notice a “P” in the upper right hand corner of the report (this is true for any report displayed on the screen). If you click on the “P,” several options will be displayed, one of which is to send the report to your printer.

pop-up list), and as you tab, the amount you owe should appear (see screenshot). You'll need to process one transaction for each vendor. When you complete these transactions, you will have paid the vendors (e.g., via electronic funds transfer).

- Review the trial post reports (all should be empty except for “payments”). Print a hard copy of the Trial Post Payments report. Post this journal entry to the general ledger and create a hard copy of the journal entry (the steps for posting to the general ledger and printing are outlined under Step 3 above). Attach the trial post report to the journal entry and label as report #2.

Step 5: Ship, invoice, record payment, and update the ledger

- There is enough finished goods inventory to ship and invoice the first three customer orders (Bender’s, Laich, Woodward & Ruby). Also, since Laich and Woodward & Ruby are paying by credit card, we can record cash receipt at the time of shipping and invoicing. For each of these three orders, go to *Order Entry – Sales Order Functions - Sales Order Items* and edit the shipping quantity so that it matches the order quantity (i.e., indicate that you shipped what the customer ordered). Save your changes. Then click on the *Sales Order Header* tab and click on “Invoice this Order.” Print a hard copy of each invoice (i.e., answer ‘yes’ when asked if want to print a hard copy). Staple the three invoices together and label as report #3.
- Prior to posting journal entries associated with the customer shipments, examine and print relevant trial posting reports. Go to *Reports – General Ledger Reports – Posting – Trial Post Inventory Transactions* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. Next, go to *Reports – General Ledger Reports – Posting – Trial Post Invoices and Credit Memos* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. All other trial posting reports should contain no records; if this is not the case, then you have a problem with inaccurate data. Assuming the trial post reports appear in order, the next step is to post the entries to the general ledger and create a hard copy of the journal two entries (the steps for posting to the general ledger and printing are outlined under Step 3 above). Attach the trial post reports to the journal entries and label as report #4.
- Now record cash receipts against the Laich and Woodward & Ruby invoices (since they paid by credit card, you are able to charge their card and get credited at the time of shipment). Go to *Receivables – Cash Receipts & Adjustments – Cash Receipts Transactions* and hit the ‘plus’ icon to add a record. Tab through to the “Customer, Invoice, or Order #” field, hit the pop-up list, and select Jim Laich as the customer (note that you will not see Jim Laich in the pop-up list unless you’ve updated the pop-up list since you’ve entered these customer orders). Then tab through to the end, and repeat for the Woodward & Ruby invoice. (Alternatively, you may simply type in the two invoice #'s.) Once complete, save and exit (see screen shot).



- Prior to posting journal entries associated with the customer payments, examine and print relevant trial posting reports. Go to *Reports – General Ledger Reports – Posting – Trial Post Receipts & Adjustments*. Create a hard copy of this report. All other trial posting reports should contain no records; if this is not the case, then you have a problem with inaccurate data. Assuming the trial post reports appear in order, the next step is to post the entries to the general ledger and create a hard copy of the journal entry (the steps for posting to the general ledger and printing are outlined under Step 3 above). Attach the trial post to the journal entry and label as report #5.

The 1 page memo

During the third week of this exercise, each team will submit reports 1 through 5 noted above. In addition, teams will submit a table that summarizes how the transactions impacted various parts of the QE database (see the table below). When complete, the table reports the impact of the transactions on the *material ledger* and the *financial ledger*. At a given time instant, the material ledger specifies the quantity and location of materials whereas the financial ledger specifies the quantity and form of financial assets and liabilities.

In order to give you a start, I've partially filled out the table and I have posted it on our website. Bring up the form in Word, and type in the missing information. The information in the table should be consistent with your 5 reports, or information you look up in your database (i.e., rather than inferring what QE should be doing, determine what is being done). Depending how you entered the data, some of your numbers in the third row could be different, and if so, you should update the table with your numbers. After completing the table, consider whether the changes make sense. It could be that you believe there are some errors in the way QE is processing the changes, and if this is the case, you may point these out at the bottom of your memo.

**Specific Increases and Decreases to Material and Financial Accounts**

<b>Transaction</b>	<b>Changes in Material Ledger</b>	<b>Changes in Financial Ledger</b>
<b>Enter 4 customer orders</b> <ul style="list-style-type: none"> <li>• Bender’s Furniture</li> <li>• Jim Laich</li> <li>• Woodward &amp; Ruby</li> <li>• Jennifer Buckley</li> </ul>	No change	No change
<b>Enter 4 purchase orders</b> Stickley McLeavey Callahan VanDerhoof	No change	No change
<b>Record PO receipt, draft vendor invoices, &amp; post to ledger</b> Stickley McLeavey Callahan VanDerhoof	Inventory increase <ul style="list-style-type: none"> <li>• 12 units of 7000TBL/NLF/C</li> <li>• 50 units of WOOD-GLUE</li> <li>• 4 units of SCREWS</li> <li>• 10 units of BRACKETS</li> <li>• 100 units of FIN-NATL/LOW</li> <li>• 100 units FIN-MED/LOW</li> <li>• (and more to be filled in...)</li> </ul>	Increase in “Inventory Resale Goods” (account 1400-300/00) by \$9,720  Increase in “Inventory Raw Materials” (account 1400-000/00) by (to be filled in)  Increase in “Estimated Accounts Payable” (account 2001-000/00) by (to be filled in)  Decrease in “Estimated Accounts Payable” (account 2001-000/00) by (to be filled in)  Increase in “Accounts Payable - Trade” (account 2000-000/00) by (to be filled in)
<b>Pay vendors &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• Stickley</li> <li>• McLeavey</li> <li>• Callahan</li> <li>• VanDerhoof</li> </ul>		
<b>Invoice &amp; ship 3 orders, &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• Bender’s Furniture</li> <li>• Jim Laich</li> <li>• Woodward &amp; Ruby</li> </ul>		
<b>Receive payment (via credit card) for 2 orders &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• Jim Laich</li> <li>• Woodward &amp; Ruby</li> </ul>		

## Stage 2 – Material Planning

The third and fourth week will involve executing production scheduling and related transactions on a small scale. There will be a single memo relating to Stage 2 activities due during the fifth week of the exercise. The learning objectives during this stage are to understand how to interpret material planning reports, understand the underlying scheduling logic, and understand the mechanics of processing various transactions in support of the plan.

You will find that not all orders can be completed in time to meet the scheduled ship date. These problems are referred to as “critical path errors” in Qube ERP. It is important that you learn to recognize such errors. Dealing with critical path errors will be part of the activities during this stage of the exercise.

*Week 3.* The first steps are to refresh your memory on the state of the business and to record receipt of cash from an order that went out last week. Next, you’ll enter new customer orders, then generate and interpret material requirements plan to satisfy these orders.

### Step 1: Scan information in the QE database

- One way to refresh your memory on the information in the QE database is to use the *Reference Lists* (see FAQ #3). Hit *Ctrl+/,* or select the *Reference Lists* option under the *Action* menu header at the top of the main window. Select several different categories of information, and for each one, reload the list, and review (you may want to increase the number of records loaded – specified in the “Load” field). If you select the “Item Master File” and click on “Reload List,” for example, you will see all of the items and inventory on hand. The report can be sorted by description or code, and you may print any of these reports by clicking the “Print” button at the bottom of the window.

### Step 2: Record payment by Bender’s Furniture

- Recall that you shipped an order to Bender’s Furniture last week and that you haven’t received payment (those scoundrels). (One way to verify this is to go to *Receivables – Invoices and Credit Memos – Invoice Header*. As you scan through the three customer invoices, you’ll see that Bender’s is the only customer with a balance due – amount is \$7,723.) This retail store, as with all of your retail customers, is expected to pay within 30 days of receipt. The check arrived in the mail this morning, and you need to record this payment. Do you remember how to record a cash receipt against an invoice? Details on how to do this are listed under Step 5 of week 2 activities, but I’ll briefly review here. Go to *Receivables – Cash Receipts & Adjustments – Cash Receipts Transactions* and hit the ‘plus’ icon to add a record. Tab through to the “Customer, Invoice, or Order #” field, hit the pop-up list, and select Bender’s Furniture as the customer. Then tab through to the end, and the expected dollar value will appear. Bender’s check is for the correct amount (i.e., no need to edit), so save. After saving, scroll through and examine the cash receipt transactions (i.e., click the blue arrows). You’ll notice at the top of the window that the cash receipts from Laich

and Woodward & Ruby have been posted to the ledger, whereas Bender’s transaction has not yet been posted. This will be taken care of later on during week 4 when you have a bunch of transactions that need posting to the ledger.

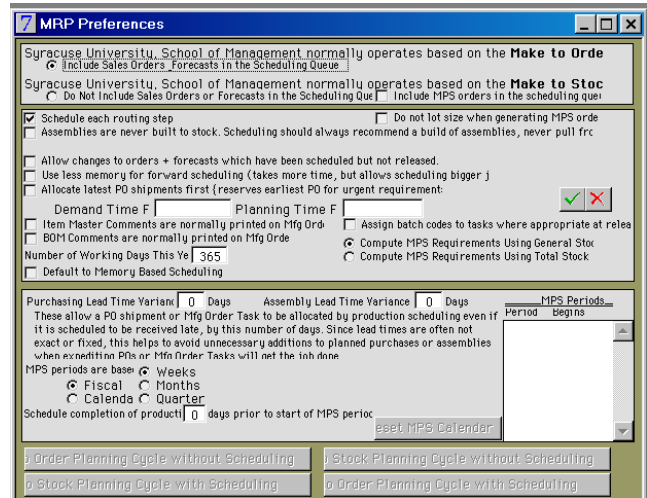
**Step 3: Enter new customer orders**

- As you enter the following orders, enter the requested ship date information in the “Sales Order Header” under the “Ship To” information; the scheduled ship date, which is what drives the material requirements plan, will automatically be set to the requested ship date. (The scheduled ship date may be later than the requested ship date due to a shortage of capacity; if capacity becomes available later, you still have information on when the customer wants to order so you can decide if you want to “reschedule in” the scheduled ship date.)

Customer	Item Code	Quantity	Requested Ship Date
DeMuro’s	900W2A1F1F4C2	16	current + 8 weeks
	900W2A1F1F4C3	16	current + 8 weeks
	900W2A1F1F4C6	16	current + 8 weeks
	800 SERIES CHR <sup>11</sup>	1	current + 8 weeks
	900 SERIES CHR <sup>12</sup>	1	current + 8 weeks
Anagnost & Rodriguez LLP <sup>13</sup> 72 Main St Richmond, VA 15072 (Internet order, credit card <sup>14</sup> )	900W2A1F1F4C3	1	current + 1 week
	900W2A1F1F4C6	8	current + 1 week

**Step 4: Set your scheduling logic preferences**

- Initialize logic settings in preparation for generating a manufacturing plan. Go to *Production Plan – Setup Functions – MRP Preferences* and make sure the settings are for a “Make to Order” environment. Also make sure that the flag to “Schedule each routing step” is checked (see screenshot).

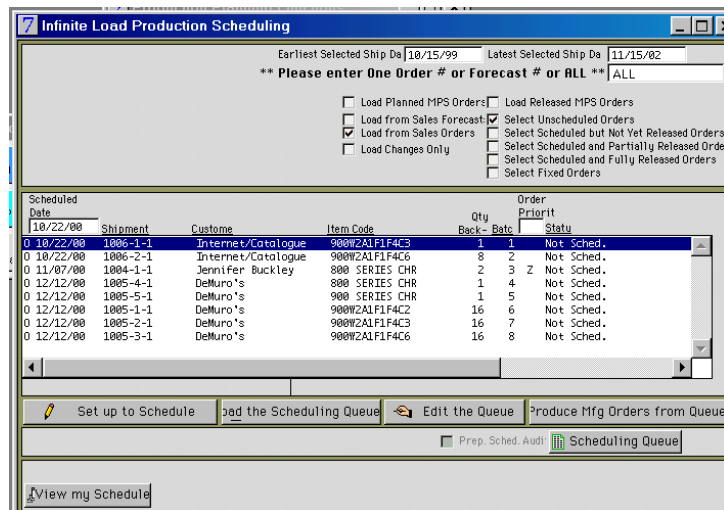


<sup>11</sup> Options selected: A800-WALNUT, N/C CRSE-BRN, FIN-NATL/LOW, FR800-WALNUT.  
<sup>12</sup> Options selected: A900-CHERRY, CTN CRSE-T/W/BN, FIN-NATL/LOW, FR900- CHERRY.  
<sup>13</sup> As an alternative to the approach used earlier, do not add this customer to the master list. Rather, enter the sales order information should be entered under the ‘INT’ customer code (since this is an Internet order). During the week 2 activities you created a permanent record of customer information in the customer master list (e.g., for catalog mailing list or for tracking repeat business). This time customer information will be stored on the sales order but not in the customer master list (e.g., approach is reasonable if you don’t want to fill up your master list with lots of customers you may never see again). To process this as an INT customer order, select this customer code for the “Bill To” on the *Sales Order Header* (e.g., hit *Ctrl+/* and double click on INT). Then **type in the customer name and address as part of the “Ship To” data**.  
<sup>14</sup> Credit card payment can be specified under “Pay Terms” on the *Sales Order Header*. When you get to the “Pay Terms” edit box hit *Ctrl+/* and select the “credit card” option.

Step 5: Schedule purchases and production for sales orders

- There are three types of manufacturing activities that will be planned when you execute this step. There are planned assemblies, planned operations, and planned purchases. Planned assembly activities involve labor and material, and when completed, result in an inventory transaction (i.e., component or raw material inventory decreases and finished goods or component inventory increased). Planned operation activities involve labor only. There are no associated official inventory transactions when a planned operation activity is complete (see FAQ #6). Planned purchase activities are for items supplied by vendors. Planned assemblies and planned operations become released assemblies and operations. Planned purchases eventually become purchase orders, but may be purchase requisitions in the interim (see FAQ # 5). Converting planned to purchases to purchase requisitions provides an intermediate step to check if everything is in order prior to cutting the P.O. You may wish to save a copy of your database file prior to scheduling.

- There are three open customer orders that can't be shipped until product is produced (i.e., Buckley, DeMuro's, and Anagnost & Rodriguez). Go to *Production Plan – Production Scheduling Functions - Infinite Load Scheduling* and click “Load the Scheduling Queue.” Make sure that the transaction dates entered span all scheduled ship dates found on the sales orders.<sup>15</sup> The following boxes should be checked: “Load from Sales Orders”



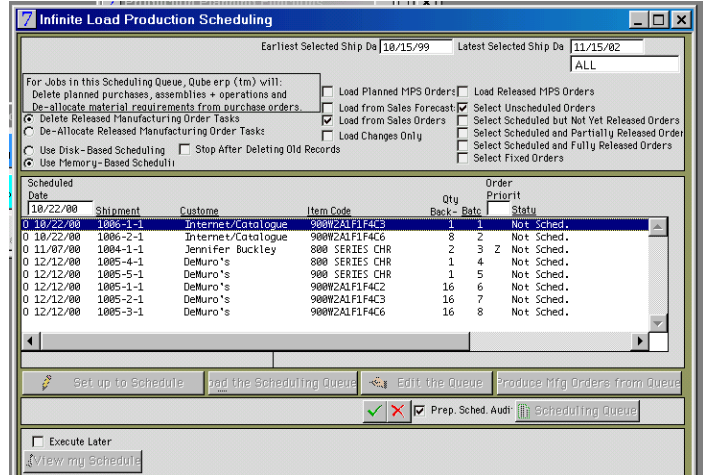
- and “Select Unscheduled Orders.” When you click the “save” button, the list of unscheduled orders will be displayed (see screenshot).
- If you click “Edit the Queue” you can rearrange the sequence in which the requirements for the sales orders will be scheduled. Once you are happy with the sequence (it is fine to leave unchanged), click the “Produce Mfg Orders from Queue” button. **Check the “Prepare Schedule Audit” box,**<sup>16</sup> and hit “save” (see screenshot; better to not change the default from “Use Disk-Based Scheduling”). Now is a good time to stretch - scheduling will take a couple of minutes.
- **Prior to closing this window**, click on “Scheduling Audit.” Print a hard copy and label as week 3/report #1 (set page type to “landscape” when the printer dialog box appears). Carefully review this report and try to make sense of the information

<sup>15</sup> One quick way to determine a suitable date range is through *Order Entry – Sales Order Functions - Backlog List*. Click “Load the List,” check the “Select all Jobs, Items and Customers” box, and specify a very wide date range. When you click the “save” button, all unshipped orders will be listed.

<sup>16</sup> The scheduling audit report is a very detailed listing of the logic QE used to generate manufacturing orders in support of the sales orders. It is a useful tool for understanding the logic used during scheduling.



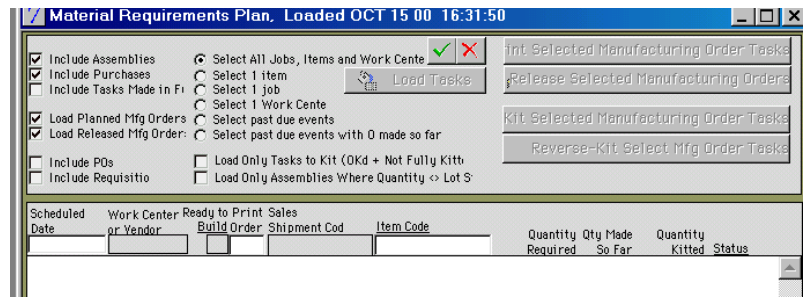
contained in it. The report identifies the logic used to develop the material requirements plan. In essence, what you will see is the logic you used when developing MRP records as part of the homework.



**Step 6: View and print the material plan**

- Go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*. Click the “Load Tasks” button and select the following boxes and radio control button: “Include Assemblies,” “Include Purchases,” “Load Planned Manufacturing Orders,” and “Load Released Manufacturing Orders,” and “Select All Jobs, Items, and Work Centers” (see screenshot). Then click the “save” button in order to view time-phased activities in support of the sales orders.

- The activities will be a mix of planned purchases, assemblies, and operations. You may sort by scheduled date by clicking on the “Scheduled Date” title. Any activity that shows up with a date before



today is a problem. Double click on any of the manufacturing orders in the list to drill down to the manufacturing order header/tasks window. There is a column in this window titled “CP Error?” If the answer is “yes”, then this activity is associated with a customer order that is behind schedule (at least according to the lead times specified in the database). The information on the manufacturing orders varies depending on the type (e.g., purchase, assembly, or operation).

- You need to print a hard copy of three manufacturing orders associated with the Anagnost & Rodriguez customer order (this will be order # 1006 if you’ve executed the exact steps up to this point in the exercise). From *Production Planning - Production Scheduling Functions - Material Requirements Plan* select the “Print Selected Manufacturing Order Tasks” button, then click on the following tasks while pressing the *Ctrl* key (the *Ctrl* key allows you to select multiple lines in a window; you could also reverse the process by selecting the orders, the clicking the button):
  - shipment code = “1006-2-1”, item code = “N/C FINE-T/W/BN”, and status = “Planned Purchase”
  - work center or vendor = “GLUE”, shipment code = “1006-2-1”, item code = “FR900-CHERRY”, and status = “Planned Labor”
  - work center or vendor = “GLUE”, shipment code = “1006-2-1”, item code = “FR900-CHERRY”, and status = “Planned Assembly”

- Click the save button and answer “yes” to “Print this report?” for each of the three manufacturing orders. Create a hard copy of each of the three orders, staple together, and label this week 3/report #2.
- The first order gives detail on a planned purchase order. The remaining two orders specify planned labor and material requirements to assemble a 900 series frame out of cherry wood.

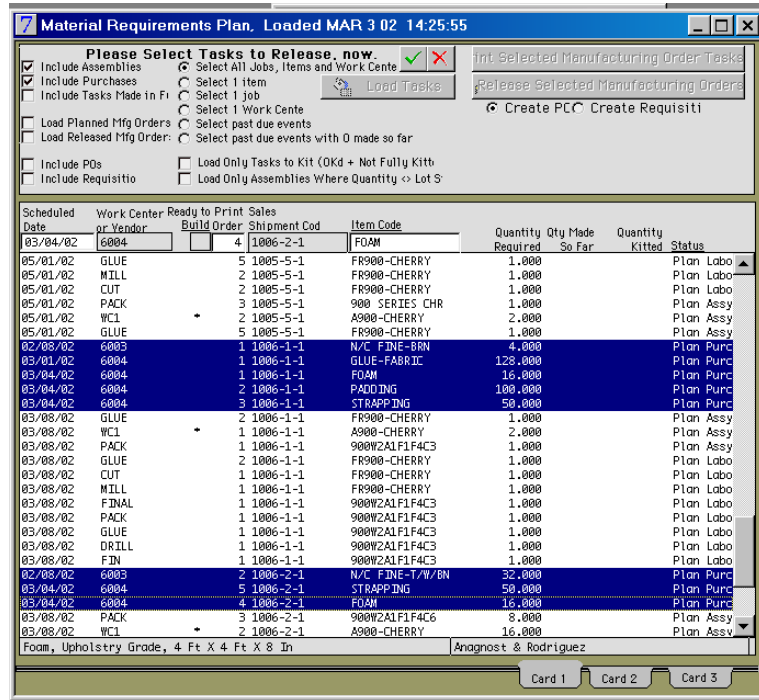
Step 7: Assess the plan

- Identify which customer order(s) will be late and why. Print a hard copy of a report that shows that the customer order(s) you identified will be late according to the plan. The particular report you select is up to you (the learning objective here is to give you practice in searching and finding information in the system). Here are a couple of hints however – you can always type *Ctrl+P*, or select “Print” from the “File” menu, to create a hard copy of data in a window you are viewing. There are a number of other possible reports that can be found under the “Reports” menu.
- After printing a relevant report, add hand-written notes directly on the report (as if you’re writing to your boss) that identify the problem (e.g., circle the offending manufacturing order or orders). Also, propose one or two alternatives on how to respond to the problem. Your notes need not be expansive, but rather a few sentences on the source of the problem and possible solutions. Label this report with your brief hand written notes as week 3/report #3.

Week 4. Week 3 activities centered on developing and interpreting a plan. In week 4, the focus is “releasing” the plan and processing transactions associated with execution.

**Step 1: Release purchase orders associated with the Anagnost & Rodriguez order**

- Determine the sales shipment code for the Anagnost & Rodriguez (A&R) order (this will be 1006 if you’ve executed the exact steps up to this point in the exercise); among other places, you may find this by scanning through the sales order header records under *Order Entry*. With the order number in mind, bring up the complete material requirements plan (go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*, click the “Load Tasks” button and select the radio control “Select All Jobs, Items, and Work Centers”). In order to release all planned purchases associated with the A&R order, it’s a good idea to first sort by “Sales Shipment Code” (recall that you may sort records on a report by clicking on the field name). Click “Release Selected Manufacturing Orders,” make sure the radio control “Create POs” is selected, and highlight all planned purchases for A&R (as in many other software applications, multiple lines can be selected by pressing the *Ctrl* key while clicking the mouse button; see screenshot).



- If your vendors have access to your database, they will be able to see what you’ve ordered from them. Alternatively, you may need to print and fax the P.O.’s. Go to *Purchasing – Purchasing Functions – Purchase Order Header* and view the two P.O.’s you just created. Print a hard copy of each P.O. (i.e., select “Print” under the “File” menu, or hit *Ctrl+P* when viewing the purchase order window), staple the 2 P.O.’s together, and label as week 4/report #1.

**Step 2: Record receipt of product, draft vendor invoices, and update the general ledger**

- The raw materials from the two vendors have just arrived. You need to record receipt of the product, draft vendor invoices, and post to the general ledger. The mechanics are the same as what was done in week 2, and you may refer to this section of the exercise for more detail on the steps. To record receipt of material, go to *Purchasing – Receiving Functions - P.O. Receipts*, click the green “+” sign, key in the purchase order number (or hit *Ctrl+P* and select from the list), select “Default Quantities to Full

Amount,” and hit the enter key. At this point the purchase order item quantities should appear in the window and you can save the transaction. Do this for each of the vendor P.O.’s (i.e., Karsonovich & Sons, Karolesky Fabric Supply). With this step you are officially recording number of units received. The value of this inventory is estimated according to the vendor cost data in QE. In the next step, you have the opportunity to input the correct costs and what you owe Karsonovich & Sons and Karolesky Fabric Supply.

- Now that you recorded receipt of the product, you’ll have to draft vendor invoices. Go to *Purchasing – Purchasing Functions - Purchase Order Items*. For both P.O.’s, click on the “Draft Vendor Invoice” button, make up an invoice number, and select the “Use Quantities Received” and “Default Quantities to Full Amount” radio control buttons. Hit the enter key and the dollar amounts for the purchased items should appear in your window. If everything looks ok, hit the save button. When prompted, answer “yes” to “Draft invoice for selected items on the P.O.?”
- By drafting the vendor invoices, you are formalizing what you owe each vendor. You are now ready to update accounts payable for the amounts you owe the vendors. Before posting to the ledger, examine the trial post reports. Go to *General Ledger Reports* and look at all of the trial post reports (six in total). All reports should be empty except for *Trial Post Inventory Transactions*, *Trial Post Payables*, and *Trial Post Receipts & Adjustments* (remember that you recorded receipt of payment from Bender’s Furniture in week 3 that hasn’t yet been posted to the ledger). Print all three trial post reports (when you bring up the *Trial Post Inventory Transactions* and *Trial Post Payables* reports, tab down and answer “yes” to “Print Detail of Each Transaction?”).
- Assuming the trial post reports appear to be correct, go to *General Ledger – Posting & Closing - Post Open Transactions*. Specify the date range of transactions (i.e., select a time window that spans your transactions), select all types of transactions, and post to general ledger (it’s also not a bad idea to select the “Update All Pop-up Lists” box). After posting, go to *General Ledger – General Ledger Transactions - Journal Entries* and verify that the three most recent entries are consistent with the information on your trial post reports. Print out a hard copy of the three journal entries (i.e., type *Ctrl+P* when the journal entry you wish to print is displayed) and attach to the trial post reports. Staple the trial post and journal entries together and label as week 4/report #2.

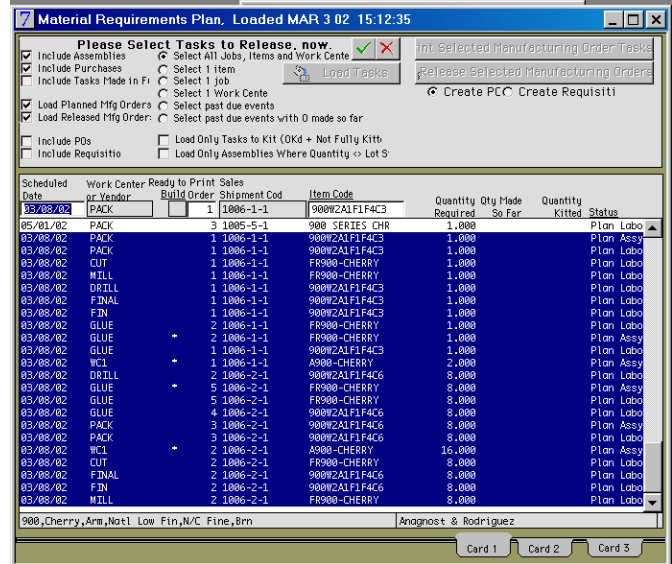
### Step 3: Pay the vendors and update the general ledger

- It’s now time to pay the two vendors (see week 2 for more detail on the steps, including screenshots). Go to *Payables – Payment Transactions - Cash Disbursements* and click the “+” icon to add a record. Type in a vendor code (or select a vendor from the reference list), type in the invoice # (or select from the pop-up list), and as you tab, the amount you owe should appear. You’ll need to process one transaction for each vendor. When you complete these transactions, you will have paid the vendors (e.g., via electronic funds transfer).
- Review the trial post reports (all should be empty except for “payments”). Print a hard copy of the *Trial Post Payments* report. Post this journal entry to the general

ledger and create a hard copy of the journal entry. Attach the trial post report to the journal entry and label as week 4/report #3.

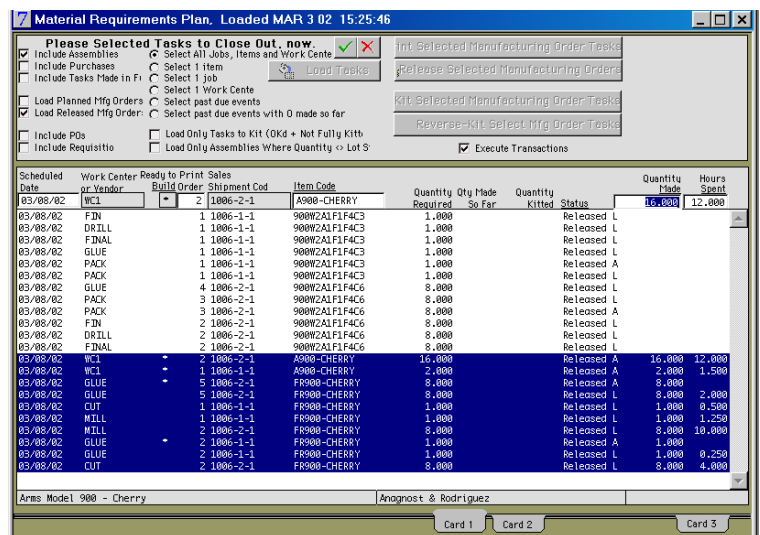
**Step 4: Release manufacturing orders associated with the Anagnost & Rodriguez order**

- Now that the necessary materials for the A&R order have been received from the vendors, it is possible to make the products. Go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*, click the “Load Tasks” button, and save. Sort the report by customer order (i.e., click on the “Sales Shipment Code”). After sorting, all of the manufacturing orders that need to be released and executed to ship the A&R order will be together at the end of the report.
- Click the “Release Selected Manufacturing Orders” button, highlight all of the manufacturing orders associated with the A&R order (recall that holding the *Ctrl* button while clicking the mouse allows you to select multiple lines), and hit save (see screenshot). With this action, you have indicated work to be done at various workcenters in the plant in order to make the 9 chairs for A&R (analogous to releasing a P.O. to a vendor).



**Step 5: Record production of arms (A900-CHERRY) & frames (FR900-CHERRY)**

- Since you have all the necessary raw materials (recorded receipt in Step 3 above) and the shop orders have been released to the floor, all that is left is build the chairs. You will record the completed production of arms and chair frames in this step. Once these are produced, the final chairs for A&R order can be assembled, which is the next step. Bring up the material requirements plan and sort by “Status.” All of the released manufacturing orders will appear at the end of the report (alternatively, reload the material requirements plan with only released orders). Click the “Close Out Selected Manufacturing Orders” button, then check the “Execute Transactions” box. Tab through the rows (“Quantity Made” and/or “Hours Spent” for each task will be filled in as you do this) for each of the manufacturing orders associated with making



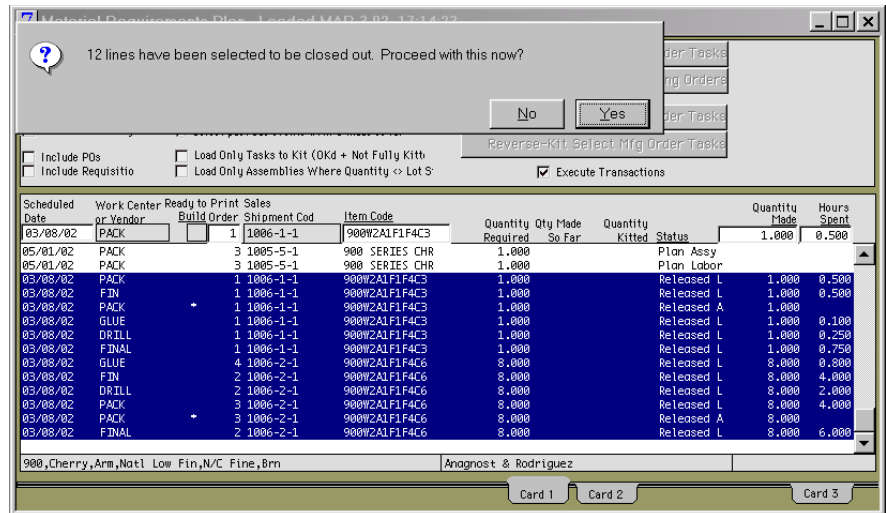
subassemblies A900-CHERRY and FR900-CHERRY for A&R. After the quantity produced and/or labor time information has been added, highlight these manufacturing orders (depress the *Ctrl* key while clicking the mouse), and save (see screenshot). Answer “Yes” to whether you want to close out these manufacturing orders. With this step, you have just recorded that all production activities associated with making the arms and frames for the A&R order are complete. You also recorded the production time for each shop order; this is needed for proper product costing, and is useful for comparing standard with actual times for planning purposes.

- The record of production of arms and frames has an impact on the financial ledger. Print a hard copy of the trial post report for inventory transactions (make sure to select “yes” to “Print Detail of Each Transaction”). Check the five other trial post reports; these will be empty. Next, post this journal entry to the general ledger and create a hard copy of the journal entry. Attach the trial post report to the journal entry and label as week 4/report #4.

Step 6: Record production of finished chairs

- Now that the necessary arms and frames have been produced, the finished chairs can be assembled. Go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*, click the “Load Tasks” button, and save. Sort the report by customer order (i.e., click on the “Sales Shipment Code”). Notice that manufacturing orders for A900-CHERRY and FR900-CHERRY no longer appear on the report (i.e., these orders have already been executed and recorded). Notice also that all of the manufacturing orders for 900W2A1F1F4C3 and 900W2A1F1F4C6 of the A&R order are

“released.” These finished chairs have just been produced and now you need to record this information; the mechanics to do this follow Step 6 above. Click the “Close Out Selected Manufacturing Orders” button, then check the “Execute Transactions” box.



Tab through the rows (quantities and/or time for each task will be filled in as you do this) for each of the manufacturing orders associated with making 900W2A1F1F4C3 and 900W2A1F1F4C6 for A&R. After the quantity produced and/or labor time information has been added, highlight these manufacturing orders (depress the *Ctrl* key while clicking the mouse), and save. Answer “Yes” to whether you want to close out these manufacturing orders (see screenshot). With this step, you have just recorded that all production activities associated with making the finished chairs for A&R are complete.

- Finished goods production has an impact on the financial ledger. Print a hard copy of the trial post report for inventory transactions (make sure to select “yes” to “Print Detail of Each Transaction”). The other trial post reports should be empty. Next, post the journal entry to the general ledger and create a hard copy of the journal entry. Attach the trial post report to the journal entry and label as week 4/report #5.

Step 7: Ship, invoice, and record payment for the Anagnost & Rodriquez order

- Now that the finished product is available, it’s time to ship, invoice, and record payment for the A&R order (as in Step 5 of week 2). Go to *Order Entry – Sales Order Functions - Sales Order Items* and, if necessary, edit the shipping quantity so that it matches the order quantity (i.e., indicate that you shipped what the customer ordered). Save your changes. Then click on the *Sales Order Header* tab and click on “Invoice this Order.” Print a hard copy of the invoice and label as week 4/report #6.
- Now view the trial post reports to verify that the financial transactions are in order prior to posting journal to the ledger. Go to *Reports – General Ledger Reports – Posting – Trial Post Inventory Transactions* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. Next, go to *Reports – General Ledger Reports – Posting – Trial Post Invoices and Credit Memos* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. All other trial posting reports should contain no records; if this is not the case, then you have a problem with inaccurate data. Assuming the trial post reports appear in order, post open transactions to the general ledger and create a hard copy of the two journal entries. Attach the trial post reports to the journal entries and label as week 4/report #7.
- Now record the cash receipt against the A&R invoice (since they paid by credit card). Go to *Receivables – Cash Receipts & Adjustments – Cash Receipts Transactions* and hit the ‘plus’ icon to add a record. Tab through to the “Customer, Invoice, or Order #” field, hit the pop-up list, and select Internet/Catalog as the customer, then tab through to the end (quantities and costs will be inserted). Once complete, save and exit. Go to *Reports – General Ledger Reports – Posting – Trial Post Receipts & Adjustments*. Create a hard copy of this report (as usual, all other trial posting reports should contain no records). Post open transactions to the general ledger and create a hard copy of the journal entry. Attach the trial post to the journal entry and label as week 4/report #8.

The 2 page memo

During the fifth week of this exercise, each team will submit reports 1 through 3 from week 3 and reports 1 through 8 from week 4. Report #3 from week 3 is especially important because it contains your notes identifying a problem and a possible correction. In addition, teams will submit a table that summarizes how the transactions impacted various parts of the QE database (see table below). When complete, the table reports the impact of the transactions on the *material ledger* and the *financial ledger*. At a given time instant, the material ledger specifies the quantity and location of materials whereas the financial ledger specifies the quantity and form of financial assets and liabilities. The table is partially complete (i.e., through the first four rows) and is posted it on our website. Bring up the form in Word, and type in the missing information. The

information in the table should be consistent with your reports, or information you look up in your database (i.e., rather than inferring what QE should be doing, determine what is being done). You may need to change the data in the fourth row to make it consistent with data in your reports.

After completing the table, consider whether the changes make sense. It could be that you believe there are some errors in the way QE is processing the changes, and if this is the case, you may point these out at the bottom of your memo.



**Specific Increases and Decreases to Material and Financial Accounts**

<b>Transaction</b>	<b>Changes in Material Ledger</b>	<b>Changes in Financial Ledger</b>
<b>Record payment by Bender's Furniture</b>	No change	No change
<b>Enter 2 customer orders</b> DeMuro's Anagnost & Rodriguez LLP	No change	No change
<b>Generate material requirements plan</b>	No change	No change
<b>Release planned PO's tied to the A&amp;R order</b> Karolesky Fabric Supply Karsonovich & Sons Stickley	No change	No change
<b>Record PO receipts, draft vendor invoices, &amp; post open transactions to ledger</b> Karolesky Fabric Supply Karsonovich & Sons Stickley	Inventory increase from Karolesky PO <ul style="list-style-type: none"> <li>• 32 units of N/C FINE-T/W/BN</li> <li>• 4 units of N/C FINE-BRN</li> </ul> Inventory increase from Karsonovich PO <ul style="list-style-type: none"> <li>• (to be filled in)</li> </ul>	Decrease in "Accounts Receivable – Trade" (account 1200-000/00) by (to be filled in) Increase in "First Checking Account" (account 1000-000/00) by (to be filled in) Increase in "Inventory Raw Materials" (account 1400-000/00) by (to be filled in) Increase in "Estimated Accounts Payable" (account 2001-000/00) by (to be filled in) Decrease in "Estimated Accounts Payable" (account 2001-000/00) by (to be filled in) Increase in "Accounts Payable - Trade" (account 2000-000/00) by (to be filled in)
<b>Pay vendors &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• Karolesky Fabric Supply</li> <li>• Karsonovich &amp; Sons</li> <li>• Stickley</li> </ul>		
<b>Release planned manufacturing orders tied to the A&amp;R order</b>		
<b>Record completed production of subassemblies &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• A900 – CHERRY (cherry arms)</li> <li>• FR900 – CHERRY (cherry frames)</li> </ul>		
<b>Record completed production of finished product &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• 900W2A1F1F4C3</li> <li>• 900W2A1F1F4C6</li> </ul>		
<b>Invoice &amp; ship the A&amp;R order &amp; post to ledger</b>		
<b>Record cash receipt (via credit card) against A&amp;R invoice &amp; post to ledger</b>		

### Stage 3 – Putting it all Together

*Weeks 7 and 8.* The fifth and sixth weeks are downtime in order to give you the opportunity to reflect on activities from the earlier weeks. This will help in preparation for the seventh and eighth weeks when teams will essentially go through a second round of Stage 2 activities. The learning objectives of weeks 7 and 8 are to (1) give you an opportunity to fill in gaps in your knowledge of system basics (i.e., Stage 2 activities) and (2) learn how to set up and interpret “available-to-promise” information.

Consider quickly going through *Guided Tour* tutorial a second time (it will make a lot more sense than when you went through it the first time, and you’ll get a deeper understanding of the system).

Begin by downloading ‘Orange3.dfl’ from our website, and use this as your database as you begin the following steps. This file reflects all of the steps from week 1 activities, i.e., the database has been populated, grouping codes have been defined and assigned, and various initialization switches have been set. There are also 20 units each of: 700W2A1F1S1, 800W2A1F1F4C2, 800W3A1F3F4C6, 7000TBL/NLF/C. This is the file you will use as you begin week 7 and 8 activities.

Here is an overview of week 7 and 8 activities. Teams enter customer orders. Some of these orders are shipped, invoiced, and paid right away. Next, demand forecasts for two of the stocked products are entered into the system. By specifying these forecasts, you are able to use the scheduling function in QE to generate a master production schedule in an environment that is predominantly make-to-order. A production, shipment, and purchasing schedule is then generated from open orders and the forecasts. The schedule is checked for critical path errors (i.e., customer orders, if any, that will not be shipped on time according to the plan). Planned purchase orders that are scheduled for near term release are released. Purchase order receipts are recorded and vendors are paid right away. Selected manufacturing orders are processed and recorded, and a customer order is invoiced and shipped. A customer calls and asks when some product can be shipped, both as a single shipment and as a split shipment. The information in the available-to-promise report is used to answer this question. The order is booked as a single shipment with the appropriate planned ship date. A few hours later the customer calls to cancel the order. Now for the details . . .

#### Step 1: Enter customer orders

As you enter the following 7 customer orders, remember to specify the “Requested Ship Date” under the “Ship To” information under *Order Entry – Sales Order Functions – Sales Order Header*. Rooney and Associates, Jennifer Panning, and Dave Cerne, as residents of New York, should be charged New York state sales tax at a rate of 7.8%. Accordingly, enter 7.8 in the edit field just to the left of either Tax #1 or Tax #2 on the Sales Order Header window for these orders. (Sales tax would be automatically charged if you created a record for each of these customers in the customer master list prior to entering the order – the bill to address is used to determine if sales tax should be assessed. This was the approach illustrated in week 2 of the exercise.)

<u>Customer Orders</u>	<u>Item Code</u>	<u>Quantity</u>	<u>Requested Ship Date</u>
Cobb's Interiors - Portland	900W2A1F1F4C2	16	current + 6 weeks
	900W2A1F1F4C3	16	current + 6 weeks
	900W2A1F1F4C6	16	current + 6 weeks
	800 SERIES CHR <sup>17</sup>	1	current + 6 weeks
	900 SERIES CHR <sup>18</sup>	1	current + 6 weeks
Hsieh Fine Designs - Boston	900W2A1F1F4C3	1	current + 4 weeks
	900W2A1F1F4C6	8	current + 4 weeks
Rooney and Associates <sup>19</sup> 103 Templeton St New York, NY 10103 (phone order, credit card <sup>20</sup> )	800W2A1F1F4C2	2	current
	800W3A1F3F4C6	2	current
	7000TBL/NLF/C	1	current
Sam Stone 16 Everglade Highway Orlando, FL 50137 (Internet order, credit card)	800W3A1F3F4C6	1	current
Rice and Martinez Consulting 552 Wadsworth Av Tempe, AZ 82033 (phone order, credit card)	7000TBL/NLF/C	2	current
	800W2A1F1F4C2	8	current
Jennifer Panning 6199 Quintard Rd Jamesville, NY 13078 (showroom order, credit card)	700W2A1F1S1	2	current
Dave Cerne 1602 Hillcrest Dr Ithaca, NY 13088 (showroom order, credit card)	800W3A1F3F4C6	4	current

Step 2: Ship, invoice, and record payment on the last 5 orders

- There is enough finished goods inventory to invoice and record cash receipts on the last 5 orders (i.e., Rooney through Cerne). For each of these orders, go to *Order Entry – Sales Order Functions - Sales Order Items* and verify that the shipping quantity matches the order quantity (edit if necessary). Then click on the *Sales Order*

<sup>17</sup> Options selected: A800-WALNUT, N/C CRSE-BRN, FIN-NATL/LOW, FR800-WALNUT.

<sup>18</sup> Options selected: A900-CHERRY, CTN CRSE-T/W/BN, FIN-NATL/LOW, FR900- CHERRY.

<sup>19</sup> Do not add this customer and the following customers to the customer master list. The “bill to” customer code is ‘INT’; “ship to” fields contain the customer name and address. The last 2 customers should have a customer code of ‘SHOW’.

<sup>20</sup> Credit card payment can be specified under “Pay Terms” on the *Sales Order Header*. When you get to the “Pay Terms” edit box hit *Ctrl+/,* and select the “credit card” option.

*Header* tab and click on “Invoice this Order.” Print a hard copy of each invoice (answer ‘yes’ when asked if want to print a hard copy; staple the 5 invoices together and label as report #1).

- Prior to posting journal entries associated with the customer shipments, examine and print relevant trial posting reports. Go to *Reports – General Ledger Reports – Posting – Trial Post Inventory Transactions* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. Next, go to *Reports – General Ledger Reports – Posting – Trial Post Invoices and Credit Memos* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. All other trial posting reports should contain no records; if this is not the case, then you have a problem with inaccurate data. If the trial post reports appear in order, then post to the general ledger. After posting, go to *General Ledger – Journal Entries* and verify that the two most recent entries are consistent with the information on your trial post reports. Print out a hard copy of the two journal entries (i.e., type *Ctrl+P* when the journal entry you wish to print is displayed) and attach to the trial post reports. Staple the trial post and journal entries together and label as report #2.

- Now record cash receipts against the 5 invoices. Go to *Receivables – Cash Receipts & Adjustments - Cash Receipts Transactions* and hit the ‘plus’ icon to add a record. Tab through to the “Customer, Invoice, or Order #” field, hit the pop-up list, and select the customer (e.g., Internet/Catalog or Showroom). Then tab through to the end, and repeat for the remaining 4 invoices. Once complete, save and exit (see screen shot to right).

Transaction	Date	Invoice or	G/L Account Code	Check Numbe	Balance Du	Amount Received	Discount Taken	
I 5001	03/13/02		1200-000/00		4,371.29	4,371.29		
I 5002			1200-000/00		539.00	539.00		
I 5003			1200-000/00		8,210.00	8,210.00		
I 5004			1200-000/00		991.76	991.76		
I 5005			1200-000/00		2,112.88	2,112.88		
SHOW Showroom Customer					Accounts Receivable - Trade	16,224.93		

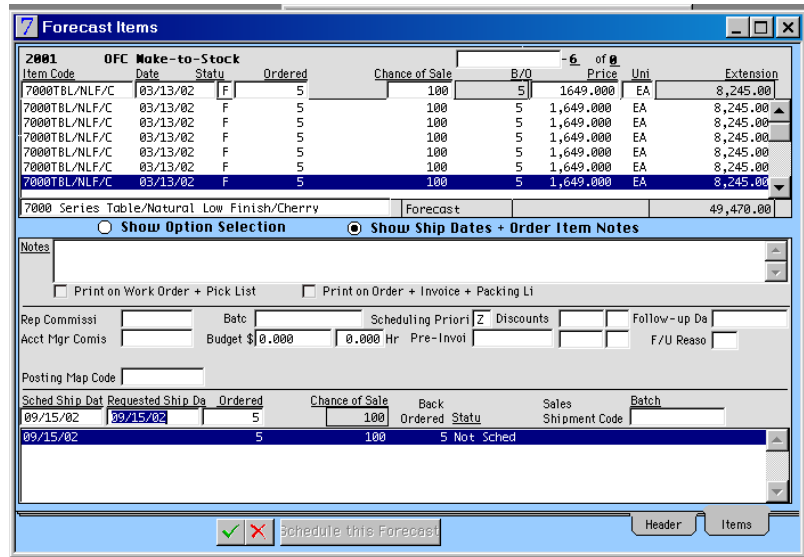
- Prior to posting journal entries associated with the customer payments, examine and print relevant trial posting reports. Go to *Reports – General Ledger Reports – Posting – Trial Post Receipts & Adjustments*. Create a hard copy of this report. All other trial posting reports should contain no records; if this is not the case, then you have a problem with inaccurate data. If the trial post reports appear in order, go to *General Ledger – Post Open Transactions*, and post to the general ledger. After posting, go to *General Ledger – Journal Entries* and verify that the most recent entry is consistent with the information on your trial post report. Print a hard copy of the journal entry (i.e., type *Ctrl+P* when viewing the journal entry) and attach to the trial post report. Staple the trial post and journal entry together and label as report #3.


### Step 3: Enter demand forecasts

- This step involves entering demand forecasts for 2 make-to-stock products. These forecasts will be used to help plan manufacturing and purchase orders in support of anticipated future demand. The first step is to define a new customer in the customer master list (e.g., see Step 1 of week 2 activities). Go to *Order Entry – Customer*

Master File - Customer Basic Info and add a record (i.e., hit the “plus” sign). Specify “OFC Make-to-Stock” as the customer “Bill To” name. There is no need to enter an address.

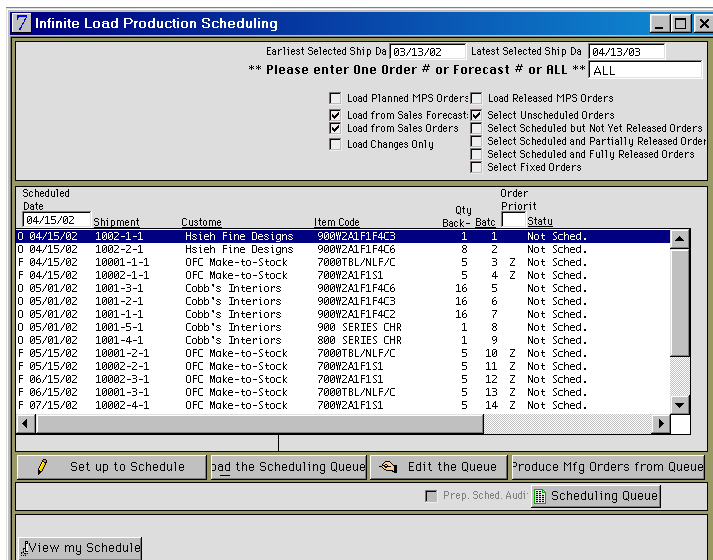
- Go to *Order Entry – Forecast & Quotation Functions - Forecast Header*, hit the “plus” sign to add a record, and select “OFC Make-to-Stock” as the “customer.” Next, click the “Items” tab and enter a forecast of 5 7000TBL/NLF/C tables per month for the next 6 months (if today is about the 15<sup>th</sup> of March, then the scheduled and requested ship dates should be set to 4/15/02, 5/15/02, 6/15/02, 7/15/02, 8/15/02, 9/15/02; see screenshot at right). Do



the same thing for the 700W2A1F1S1 chair (i.e., create an “OFC Make to Stock” forecast for 5 units per month for the next 6 months). To minimize typing, you may wish to make a duplicate of the 7000TBL/NLF/C sales forecast (i.e., click on the icon that looks like this ) and then edit the product code while **making sure the scheduled and requested ship dates and other fields are correct.** Alternatively, add the forecasts for 700W2A1F1S1 to the window with 7000TBL/NLF/C forecasts.

#### Step 4: Prepare a manufacturing and purchasing schedule

- Go to *Production Plan – Production Scheduling Functions - Infinite Load Scheduling* and click “Load the Scheduling Queue” (e.g., see Step 5 of week 3). Make sure that the transaction dates entered span all scheduled ship dates found on the sales orders and forecasts (i.e., at least 6 months into the future). The following boxes should be checked: “Load from Sales Forecasts,” “Load from Sales Orders,” and “Select Unscheduled Orders.” When you click the “save” button, the



list of unscheduled orders will be displayed. There should be a total of 19 unscheduled orders (see screenshot).

- Click the “Produce Mfg Orders from Queue” button. Then click on the “Prepare Schedule Audit” box and hit “save.” It’s now time to take a short break because the scheduling process will take a few minutes to complete.
- Click on the “Scheduling Audit” button, then review this report and try to understand the information contained in it. Notice that the first several months of forecasted demand are satisfied from inventory (i.e., scheduled purchases and production in support of 7000TBL/NLF/C and 700W2A1F1S1 is for March through May forecasted demand). If you bring up the MRP report (i.e., go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*), you’ll see that there are no severe problems, though there are a few orders scheduled to be released in the near future.

**Step 5: Release purchase orders associated with the Hsieh Fine Designs order**

- Determine the sales shipment code for the Hsieh Fine Designs order. With the order number in mind, bring up the complete material requirements plan (go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*, click the “Load Tasks” button and select the radio control “Select All Jobs, Items, and Work Centers”). In order to release all planned purchases associated with the HFD order, it’s a good idea to first sort by “Sales Shipment Code” (recall that you may sort records on a report by clicking on the field name). Click “Release Selected Manufacturing Orders,” make sure the radio control “Create POs” is selected, and highlight all planned purchases for HFD (see screenshot and/or Step 2 of week 4 for more detail).

Scheduled Date	Work Center	Ready to Print	Sales Shipment Code	Item Code	Quantity Required	Qty Made So Far	Quantity Kitted	Status
11/24/00	6004	5	1002-2-1	STRAPPING				
12/22/00	WC1	4	1001-5-1	A900-CHERRY	2.000			Plan Assy
10/31/00	6003	1	1002-2-1	N/C FINE-BN	4.000			Plan Purc
11/07/00	6005	3	1002-1-1	WD-CHRY,2X6X12	12.000			Plan Purc
11/07/00	6005	2	1002-1-1	WD-CHRY,1X6X12	12.000			Plan Purc
11/07/00	6005	1	1002-1-1	WD-CHRY,2X6X12	12.000			Plan Purc
11/21/00	6004	4	1002-1-1	GLUE-FABRIC	128.000			Plan Purc
11/24/00	6005	4	1002-1-1	SCREWS	500.000			Plan Purc
11/24/00	6005	3	1002-1-1	GLUE-WOOD	128.000			Plan Purc
11/24/00	6005	2	1002-1-1	BRACKETS	100.000			Plan Purc
11/24/00	6004	3	1002-1-1	STRAPPING	50.000			Plan Purc
11/24/00	6005	1	1002-1-1	FIN-NATL/LOW	20.000			Plan Purc
11/24/00	6004	2	1002-1-1	PADDING	100.000			Plan Purc
11/24/00	6004	1	1002-1-1	FOAM	15.000			Plan Purc
11/28/00	WC1	1	1002-1-1	A900-CHERRY	2.000			Plan Assy
11/28/00	CUT	1	1002-1-1	FR900-CHERRY	1.000			Plan Assy
11/28/00	DRILL	1	1002-1-1	900W2A1FLF4C3	1.000			Plan Assy
10/31/00	6003	2	1002-2-1	N/C FINE-T/W/BN	32.000			Plan Purc
11/07/00	6005	6	1002-2-1	WD-CHRY,2X6X12	84.000			Plan Purc
11/07/00	6005	5	1002-2-1	WD-CHRY,1X6X12	60.000			Plan Purc
11/07/00	6005	4	1002-2-1	WD-CHRY,2X6X12	24.000			Plan Purc
11/24/00	6004	4	1002-2-1	FOAM	16.000			Plan Purc
11/24/00	6004	5	1002-2-1	STRAPPING	50.000			Plan Purc
11/28/00	WC1	2	1002-2-1	A900-CHERRY	16.000			Plan Assy

- If your vendors have access to your database, they will be able to see what you’ve ordered from them. Alternatively, you may need to print and fax the P.O.’s. Go to *Purchasing – Purchasing Functions – Purchase Order Header* and view the 3 P.O.’s you just created. Print a hard copy of each P.O. (i.e., select “Print” under the “File” menu, or hit *Ctrl+P* when viewing the purchase order window), staple the 3 P.O.’s together, and label as report #4.

**Step 6: Record receipt of product, draft vendor invoices, and update the general ledger**

- The raw materials from all 3 vendors have just arrived. You need to record receipt of the product, draft vendor invoices, and post to the general ledger. The mechanics are the same as what was done in week 2 and in week 4, and you may refer to this section

of the exercise for more detail on the steps. To record receipt of material, go to *Purchasing – Receiving Functions - P.O. Receipts*, click the “+” sign, key in the purchase order number (or hit *Ctrl+/* and select from the list), select “Default Quantities to Full Amount,” and hit the enter key. At this point the purchase order item quantities should appear in the window and you can save the transaction. Do this for each of the 3 vendor P.O.’s.

- Now that you recorded receipt of the product, you’ll have to draft vendor invoices. Go to *Purchasing – Purchasing Functions - Purchase Order Items*. For each of the 3 P.O.’s, click on the “Draft Vendor Invoice” button, make up an invoice number, and select the “Use Quantities Received” and “Default Quantities to Full Amount” radio controls. Hit the enter key and the dollar amounts for the purchased items should appear in your window. If everything looks ok, then hit the save button. When prompted, answer “yes” to “Draft invoice for selected items on the P.O.?”
- By drafting the vendor invoices, you are formalizing what you owe each vendor. You are now ready to update accounts payable for the amounts you owe the vendors. Before posting to the ledger, examine the trial post reports. Go to *General Ledger Reports* and look at all of the trial post reports. All reports should be empty except for *Trial Post Inventory Transactions* and *Trial Post Payables*. Print both trial post reports (when you bring up the *Trial Post Inventory Transactions* and *Trial Post Payables* reports, tab down and answer “yes” to “Print Detail of Each Transaction?”).
- Assuming the trial post reports appear to be correct, go to *General Ledger – Posting & Closing - Post Open Transactions*, and post to the general ledger (it’s also not a bad idea to select the “Update All Pop-up Lists” box when posting in order to pick up the newly defined customer “OFC Make-to-Stock”). After posting, go to *General Ledger – General Ledger Transactions - Journal Entries* and verify that the 2 most recent entries are consistent with the information on your trial post reports. Print out a hard copy of the 2 journal entries (i.e., type *Ctrl+P* when the journal entry you wish to print is displayed) and attach to the trial post reports. Staple the trial post and journal entries together and label as report #5.

#### Step 7: Pay the vendors and update the general ledger

- It’s now time to pay the 3 vendors. Go to *Payables – Payment Transactions - Cash Disbursements* and click the “+” icon to add a record. Type in a vendor code (or select a vendor from the reference list), type in the invoice # (or select from the pop-up list), and as you tab, the amount you owe should appear. You’ll need to process one transaction for each vendor. When you complete these transactions, you will have paid the vendors (e.g., via electronic funds transfer).
- Review the trial post reports (all should be empty except for “payments”). Print a hard copy of the *Trial Post Payments* report. Post this journal entry to the general ledger and create a hard copy of the journal entry. Attach the trial post report to the journal entry and label as report #6.

#### Step 8: Release manufacturing orders associated with the Hsieh Fine Designs order

- Since all the necessary raw materials for the Hsieh Fine Designs customer order are now available, the associated manufacturing orders will be released (see Step 5 of week 4 for more detail). Go to *Production Planning - Production Scheduling*

*Functions - Material Requirements Plan*, click the “Load Tasks” button, and save. Sort the report by customer order (i.e., click on the “Sales Shipment Code”). After sorting, all of the manufacturing orders that need to be released and executed to ship the HFD order will be together at the end of the report.

- Click the “Release Selected Manufacturing Orders” button, highlight all of the manufacturing orders associated with the HFD order (recall that holding the *Ctrl* button while clicking the mouse allows you to select multiple lines), and hit save (see Step 5 of week 4 for more detail). With this action, you have indicated work to be done at various workcenters in the plant in order to make the 9 chairs for HFD (analogous to releasing a P.O. to a vendor). You have all the necessary raw materials (recorded receipt in Step 6 above), so all that is left is build the chairs. You will record the production activities in the next two steps—one for making the arms and frames, and the other for assembling the arms and frames into finished chairs.

#### Step 9: Record production of arms (A900-CHERRY) & frames (FR900-CHERRY)

- Bring up the material requirements plan with only released orders (you could bring up all orders, but the report will be smaller and limited to only what you need). In order to view the MRP report for released orders only, make sure the “Load Released Mfg Ordrs” box is checked and the “Load Planned Mfg Orders” box is not checked. Once the plan is loaded, click the “Close Out Selected Manufacturing Orders” button, then check the “Execute Transactions” box. Tab through the rows (“Quantity Made” and/or “Hours Spent” for each task will be filled in as you do this) for each of the manufacturing orders associated with making **subassemblies A900-CHERRY and FR900-CHERRY** for HFD (see Step 6 of week 4 for more detail). After the quantity produced and/or labor time information has been added, highlight these manufacturing orders (depress the *Ctrl* key while clicking the mouse), and save. Answer “Yes” to whether you want to close out these 4 lines of manufacturing orders. With this step, you have just recorded that all production activities associated with making the arms and frames for the HFD order are complete.
- The production of arms and frames affects the balance sheet. Print a hard copy of the trial post report for inventory transactions (make sure to select “yes” to “Print Detail of Each Transaction”). Check the 5 other trial post reports; these will be empty. Next, post this journal entry to the general ledger and create a hard copy of the journal entry. Attach the trial post report to the journal entry and label as report #7.

#### Step 10: Record production of finished chairs

- Now that the necessary arms and frames have been produced, the finished chairs can be assembled. Go to *Production Planning - Production Scheduling Functions - Material Requirements Plan*, click the “Load Tasks” button, check the “Load Released Mfg Ordrs” box, uncheck the “Load Planned Mfg Orders” box, and save. Notice that manufacturing orders for A900-CHERRY and FR900-CHERRY no longer appear on the report (i.e., these orders have already been executed and recorded). Notice also that all of the manufacturing orders for 900W2A1F1F4C3 and 900W2A1F1F4C6 of the HFD order are “released.” These finished chairs have just been produced and now you need to record this information; the mechanics to do this follow Step 9 above. Click the “Close Out Selected Manufacturing Orders” button,



then check the “Execute Transactions” box. Tab through the rows (quantities and/or time for each task will be filled in as you do this) for each of the manufacturing orders associated with making 900W2A1F1F4C3 and 900W2A1F1F4C6 for HFD. After the quantity produced and/or labor time information has been added, highlight these manufacturing orders (depress the *Ctrl* key while clicking the mouse), and save. Answer “Yes” to whether you want to close out these 2 lines of manufacturing orders (see Step 7 of week 4 for more detail). With this step, you have just recorded that all production activities associated with making the finished chairs for HFD are complete.

- Finished goods production affects the balance sheet. Print a hard copy of the trial post report for inventory transactions (make sure to select “yes” to “Print Detail of Each Transaction”). Check the 5 other trial post reports; these will be empty. Next, post to the general ledger and create a hard copy of the journal entry. Attach the trial post report to the journal entry and label as report #8.

#### Step 11: Ship and invoice the Hsieh Fine Designs order

- Now that the finished product is available, it’s time to ship, invoice, and record payment for the HFD order (as in Step 5 of week 2). Go to *Order Entry – Sales Order Functions - Sales Order Items* and, if necessary, edit the shipping quantity so that it matches the order quantity (i.e., indicate that you shipped what the customer ordered). Save your changes. Then click on the *Sales Order Header* tab and click on “Invoice this Order.” Print a hard copy of the invoice and label as report #9.
- Now view the trial post reports to verify that the financial transactions are in order prior to posting to the ledger. Go to *Reports – General Ledger Reports – Posting – Trial Post Inventory Transactions* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. Next, go to *Reports – General Ledger Reports – Posting – Trial Post Invoices and Credit Memos* and answer “yes” to “Print Detail of Each Transaction?” Create a hard copy of this report. All other trial posting reports should contain no records. Assuming the trial post reports appear in order, post open transactions to the general ledger and create a hard copy of the journal two entries. Attach the trial post reports to the journal entries and label as report #10.

#### Step 12: Provide available-to-promise information to a potential customer

- Mr. Lou from Lou’s Place calls and asks when he can receive an order of 25 7000TBL/NLF/C tables. He wants to know the earliest ship date for a single shipment of 25 tables, and a split shipment schedule if some of the tables can be shipped earlier. Go to *Order Entry – Setup & Miscellaneous Functions - Available to Promise*. If you don’t see the ATP option, then refresh the *Order Entry* window by clicking above the file folder icon (alternatively, look under the *Orders* menu at the top of the main window). Select the *Detail View* tab and click “Recompute All Field Values For All Items,” enter today’s date in the date field,<sup>21</sup> and hit the enter key. This ensures that the latest information is reflected in the ATP report. Find the ATP information for item 7000TBL/NLF/C. One way to do this is to hit the binocular icon, type the first part of the item code, and hit enter. Create a hard copy of the ATP

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<sup>21</sup> The date will automatically be set to Monday of the week, which is fine to leave as is.

Detail View on 7000TBL/NLF/C<sup>22</sup> (in order to print the entire report, you should hit the *Print Screen* button on your keyboard, paste into Word, and print; if the Summary View is easier to read, you may print this in place of the Detail View). Write a note on this report that identifies 2 options: (1) the earliest Mr. Lou can receive a single shipment of 25 units, (2) how an order of 25 units can be split into 2 shipments (label as report #11). The two options should be based on information in the ATP report.

Step 13: Book the order with the appropriate scheduled ship date

- Mr. Lou decides to place an order for a single shipment of 25 7000TBL/NLF/C tables. Enter this order with a requested ship date that is consistent with your recommendation under option 1 above. After entering this order, print Reports – Sales Reports – Booked Order Reports – Orders – By Order Date
- Check how this order affects the available to promise information on 7000TBL/NLF/C. Go to *Order Entry – Setup & Miscellaneous Functions - Available to Promise*, select the *Detail View* tab, and click “Recompute All Field Values For All Items,” enter today’s date in the date field, and hit the enter key. Find the ATP information for item 7000TBL/NLF/C. Create a hard copy of the ATP Detail View on 7000TBL/NLF/C (i.e., hit the *Print Screen* button on your keyboard, paste into Word, and print; you may print the Summary View instead of the Detail View if you prefer).

Step 14: Cancel the order

- Two hours later Mr. Lou calls up to cancel his order (he must have found a better deal). Go to *Order Entry – Sales Order Functions - Sales Order Header*, bring up Mr. Lou’s order, and delete by hitting the trashcan icon. After deleting this order, print Reports – Sales Reports – Booked Order Reports – Orders – By Order Date; attach this report with the 2 reports from step 13 and label as report #12.

Step 15: Celebrate the fact that step 14 is the last one!

The 2 memos

Each team will submit reports 1 through 12. Report #11 is especially important because it contains your notes interpreting information in the ATP report. In addition, teams will submit two tables that summarize how the transactions impacted various parts of the QE database (see below). The Word file with the tables is posted on our website. Bring up the file, and type in the missing information. The information in the tables should be consistent with your reports, or information you look up in your database (i.e., rather than inferring what QE should be doing, determine what is being done). After completing the tables, consider whether the changes make sense. It could be that you believe there are some errors in the way QE is processing the changes, and if this is the case, you may point these out at the bottom of your memo.



The second memo, which will be no more than two pages (single-spaced at 12-point font), will (1) assess the strengths and weaknesses of QE, (2) identify what you liked and found beneficial about the exercise, and (3) identify ways in which the exercise can be

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<sup>22</sup> This is an alternative format to the format of the APICS exam and the Vollmann, Berry, Whybark text.

improved. Strive for a well thought-out and clearly written response to the three points. The grade for the first memo with reports is based on content (i.e., reports complete and clearly labeled, table correct). The grade for the second memo is 50% on writing and 50% on content (see syllabus for more detail). Both memos (with reports) are due by 5:00 p.m. on 5/7.

**Specific Increases and Decreases to Material and Financial Accounts**

<b>Transaction</b>	<b>Changes in Material Ledger</b>	<b>Changes in Financial Ledger</b>
<b>Enter 7 customer orders</b> <ul style="list-style-type: none"> <li>• Cobb’ Interiors</li> <li>• Hsieh Fine Designs</li> <li>• Rooney and Associates</li> <li>• Sam Stone</li> <li>• Rice and Martinez Consulting</li> <li>• Jennifer Panning</li> <li>• Dave Cerne</li> </ul>		
<b>Invoice, ship, &amp; receive payment for the last 5 orders</b> <ul style="list-style-type: none"> <li>• 10 of 800W2A1F1F4C2</li> <li>• 7 of 800W2A1F1F4C6</li> <li>• 3 of 7000TBL/NLF/C</li> <li>• 2 of 700W2A1F1S1</li> </ul>		
<b>Enter demand forecasts</b> <ul style="list-style-type: none"> <li>• 5 per month of 7000TBL/NLF/C</li> <li>• 5 per month of 700W2A1F1S1</li> </ul>		
<b>Generate material requirements plan</b>		
<b>Release planned PO’s tied to the HDF order</b> <ul style="list-style-type: none"> <li>• Karsonovich &amp; Sons</li> <li>• McLeavey Industrial Supply</li> <li>• Karolesky Fabric Supply</li> </ul>		
<b>Record PO receipts, draft vendor invoices, &amp; post open transactions to ledger</b> <ul style="list-style-type: none"> <li>• Karsonovich &amp; Sons</li> <li>• McLeavey Industrial Supply</li> <li>• Karolesky Fabric Supply</li> </ul>		
<b>Pay vendors &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• Karsonovich &amp; Sons</li> <li>• McLeavey Industrial Supply</li> <li>• Karolesky Fabric Supply</li> </ul>		
<b>Release planned manufacturing orders tied to the HFD order</b>		
<b>Record completed production of subassemblies &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• A900 – CHERRY (cherry arms)</li> <li>• FR900 – CHERRY (cherry frames)</li> </ul>		
<b>Record completed production of finished product &amp; post to ledger</b> <ul style="list-style-type: none"> <li>• 900W2A1F1F4C3</li> <li>• 900W2A1F1F4C6</li> </ul>		
<b>Invoice &amp; ship the HFD order &amp; post to ledger</b>		

<b>Enter 1 customer order</b> • Lou's place		
<b>Cancel 1 customer order</b> • Lou's place		

**Summary of Changes to Balance Sheet**

Enter the financial transactions identified above into the following Excel worksheet (you may activate the worksheet by double clicking on it). When you are done you will have a report that shows the changes to the balance sheet and earnings if OFC was to close the books today. The purpose of this part of the memo is to illustrate how the details of the preceding table are reflected in important financial measures (i.e., how the day-to-day transactions of running a business enter into the bottom line). (The transactions associated with the second row of the preceding table are included to give you a start, though your numbers may differ.)

<b>Changes to Assets</b>			<b>Balance Sheet Changes</b>			<b>Changes to Liabilities &amp; Equity</b>		
			-----Liabilities-----			----Equity----		
Cash	Inventory	Accounts Receivable	Accounts Payable	Accrued Payroll	Retained Earnings			
1000-000	1400-000, 1400-100, 1400-200, 1400-300, 5820-000	1200-000	2000-000, 2001-000	2200-000	4000-000, 5000-000			
\$15,684.00	-\$7,661.80	\$15,684.00			-\$10,091.80			
	-\$2,430.00	-\$15,684.00			\$15,684.00			
<b>Total:</b>		\$5,592.20	<b>Total:</b>		\$5,592.20			
<b>Net Pretax Income:</b>		\$5,592.20						

## 6. Frequently Asked Questions

### The list of questions:

1. How can I access the QE online documentation?
2. How do I transfer data from an Excel file into QE?
3. How do I scan information in the QE database?
4. How do I print a report?
5. What is the difference between a purchase order and a purchase requisition?
6. What is the difference between planned operations and planned assemblies in the material requirements plan?
7. What is the basic sequence of QE transactions associated with processing an order?
8. What is the basic sequence of QE transactions associated with purchasing?

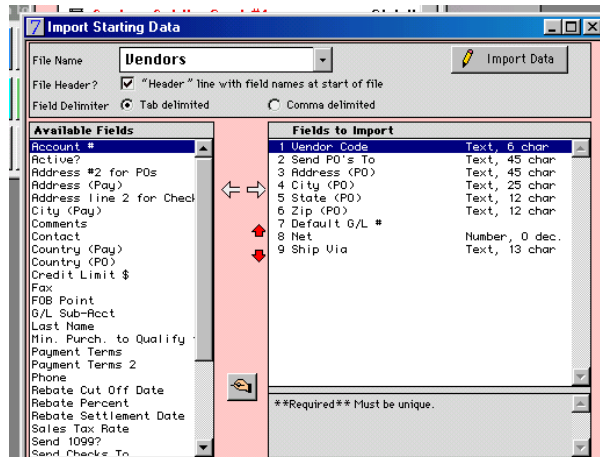
### *1. How can I access the QE online documentation?*

1. The QE online documentation is available as a self extracting zip file (Docs.exe) on our class website. After you download the file, double click on it, and about 50 meg of pdf documentation files will be extracted and stored under the directory you select.
2. You will need to have Adobe Acrobat Reader installed on your machine in order to read the documentation. If you don't have this, you may download the latest version for free from <http://www.adobe.com/prodindex/acrobat/readstep.html>.
3. Assuming you have Adobe 4.0 installed, you may wish to begin by clicking on the file in the "GenInfo" folder under "Qube Online Docs". This is the first of a 14-volume set of online documentation (over 1000 pages in total). Each folder corresponds to a volume in the documentation library.

### *2. How do I load data from an Excel file into the Qube ERP database?*

The first thing to do is to bring up your Excel spreadsheet and use the *Save As* to save the data as a *text, tab delimited* file. This is one of the options available when saving a file.

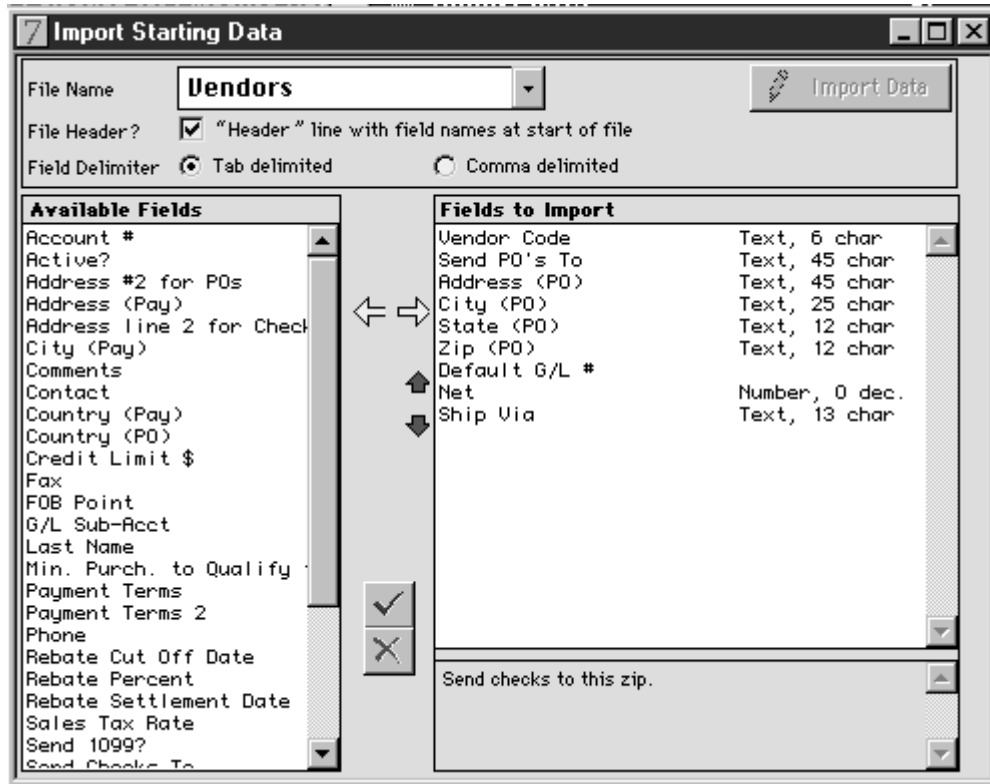
Now you are ready to fire up QE and access *Import Data*. You will need to import data files in the following order: (1) Vendor, (2) Customer, (3) IMaster, (4) BOM, (5) Routings. In order to import vendor data, you'll need to first go to *System Admin – Import Data*, or alternatively, use the *Ctrl+I* command. The screen should look like the screen shot to the right.



Notice that "Vendors" appears next to "File Name" at the top of window. You can select the type of data you are importing by clicking the down arrow next to "Vendors" (this is something you will need to do when importing data from the other 4 files). Notice the list



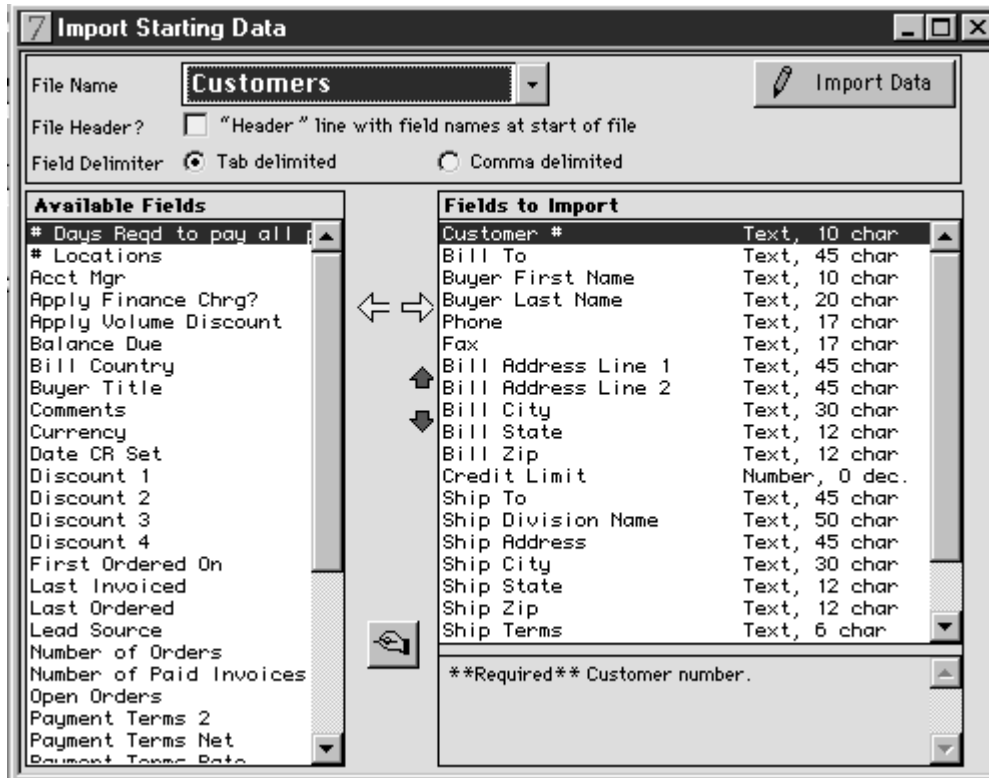
of possible fields to import on the left and the selected fields to import on the right. If you look at the vendor Excel file, you'll see that there are 9 column headings: vendor code, name, address, city, state, zip, G/L acct, Net, Ship Via. You'll need to edit and sort the fields on the right hand side of the window to match these columns. First, click the edit button (i.e., the hand with pencil). You may then edit the list by clicking a selected field and transferring left, right, up, or down by clicking on the arrows. Also check the *file header* option (i.e., because first line in the text version of your Excel file is column headings) and make sure that the *tab delimited* option is selected. When done, your window will appear as follows.



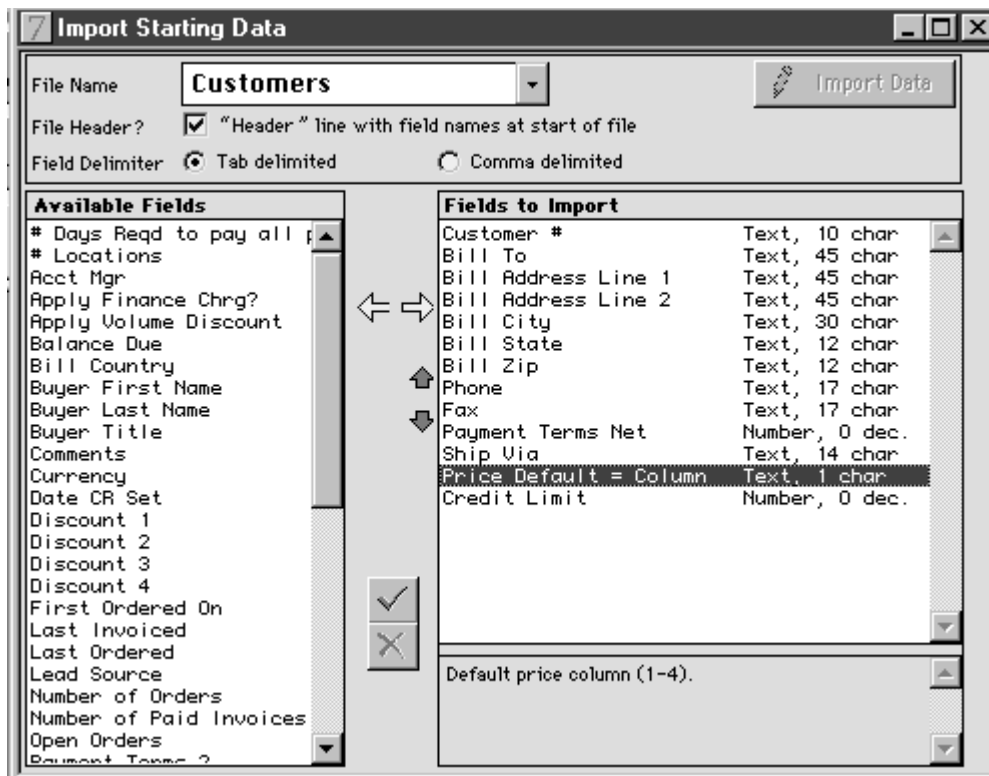
Now you to save your editing changes (by clicking  ) and press the import data button. When you do this, you will be asked to select the specific file you wish to import. *Voila . . .* the data are loaded!

The process will be similar for the remaining 4 files. Here are screen shots to help guide you through this process.

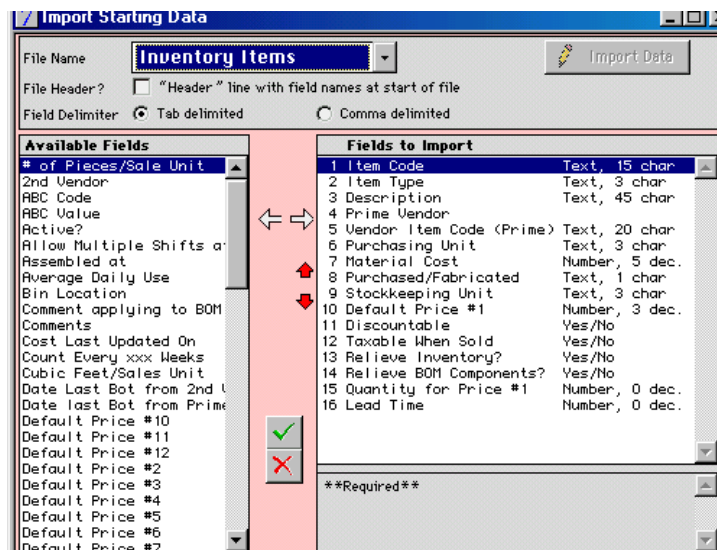
When you bring up the customer window:



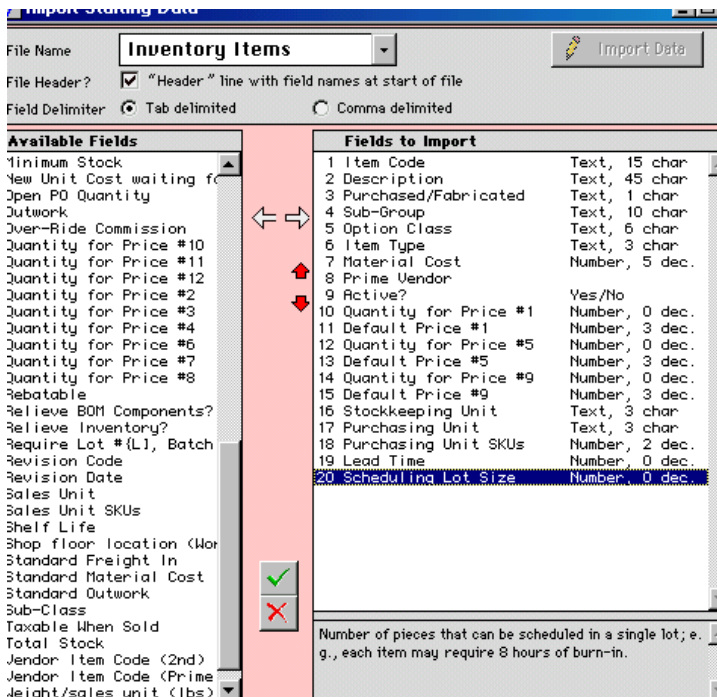
After editing the fields:



When you bring up the inventory items (item master data) window:



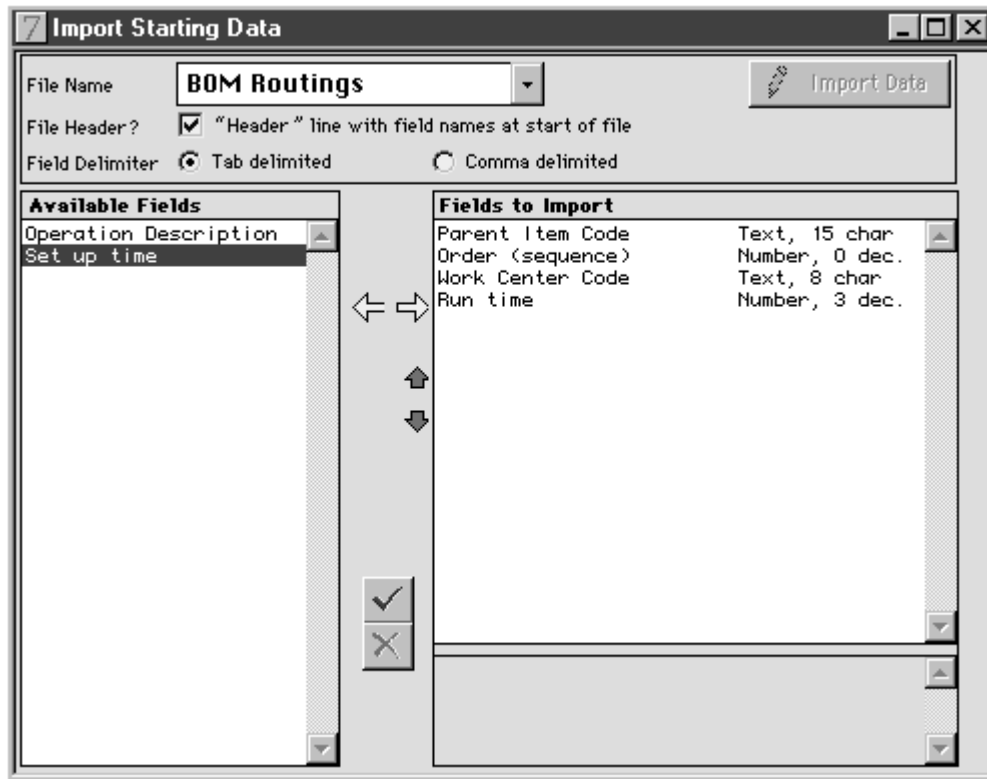
After editing the fields:



No editing of fields is required for the bill of material window. However, you will need to check the *file header* option before you import.



Here is a screenshot of the routing window after editing the fields:



### 3. How do I scan information in the QE database?

One can always view data through the various windows available, but this typically limits one to viewing one record at a time (e.g., information on a single customer or information on a single product). *Reference Lists* are a handy way to view multiple records. You may find this option under the *Action* menu header at the top of the main window. You may select different types of information to view and the number of records to display.

### 4. How do I print a report?

When you indicate you want to print a report, QE will list a number of options for your report destination (e.g., printer, screen, file). QE is designed to work best with a PostScript printer. If you don't have a PostScript printer, you can still try the printer as your report destination and it may work fine. If it doesn't (e.g., doesn't fit on the page properly), then you can print to a file. You can then open the file using Word or Excel, then print. If you have problems getting the entire report printed, don't worry about it. Print what you can print.

### 5. What is the difference between a purchase order and a purchase requisition?

Purchase requisitions are analogous to sales quotations. Once approved, sales quotations are updated to sales orders; once approved, purchase requisitions are updated to purchase

orders. For planning purposes, unapproved purchase requisitions are ignored, i.e., not treated as future available materials.

6. *What is the difference between planned operations and planned assemblies in the material requirements plan (i.e., in the Production Plan – Material Requirements Plan window)?*

Operations are labor steps in a routing. They do not involve any change in inventory (components consumed/assemblies created). Labor consumption is recorded in *Personnel & Labor - Labor Applied to Planned Operations*. Assemblies do impact inventory balances. Where routings are used, assembly transactions are normally performed following the last labor step in a routing. Assembly transactions are executed in *Inventory - Scheduled Assemblies*.

7. *What is the basic sequence of QE transactions associated with processing an order?*

There are six basic transactions that take place in response to a customer inquiry, though the first transaction may be skipped:

1. Fill out a sales quotation.
2. Fill out a sales order
3. Once product becomes available, prepare invoice and record customer shipment.
4. Post invoice transaction to the general ledger. Typically a trial post report is viewed prior to posting to make sure the proper accounts will be hit with the proper amounts. Two journal entries are posted for this transaction. First, finished goods inventory is decreased by the amount of the product value (i.e., not selling price) and costs of goods sold is increased by this same amount. Second, accounts receivable is increased by the total sales amount and sales is increased by this same value.
5. Record receipt of payment from the customer.
6. Post cash receipt transaction to the general ledger. Typically a trial post report is viewed prior to posting to make sure the proper accounts will be hit with the proper amounts. Two accounts are affected by a cash receipt – (1) accounts receivable and (2) cash.

8. *What is the basic sequence of QE transactions associated with purchasing?*

There are six basic transactions that take place when purchasing from a vendor, though the first step may be skipped:

1. Fill out a purchase requisition. This may be done automatically based on information in a material requirements plan.
2. Convert the purchase requisition to a purchase order (or fill out a purchase order).
3. Once vendor shipment arrives, record the receipt and draft a vendor invoice. The vendor invoice identifies what was received and the dollar amount owed to the vendor.
4. Post invoice transaction to the general ledger. Typically a trial post report is viewed prior to posting to make sure the proper accounts will be hit with the proper amounts. Two journal entries are associated with this transaction. For the first journal entry, estimated accounts payable is increased by an amount based on standard costs and

raw material inventory is increased by the same amount. In the second journal entry, estimated accounts payable is decreased and accounts payable is increased by the same amount; the amount is based on actual, rather than standard, costs.

5. Record payment to vendor.
6. Post cash disbursement transaction to the general ledger. Typically a trial post report is viewed prior to posting to make sure the proper accounts will be hit with the proper amounts. Two accounts are affected by a cash disbursement – (1) accounts payable and (2) cash.