



QAD Enterprise Applications  
Enterprise Edition

**Training Guide**  
**QAD Introduction to Product**  
**Costing**

70-3203-2016EE  
QAD 2016 Enterprise Edition  
Workspace: 10USA > 10USACO  
April 2016

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# QAD Introduction to Product Costing Change Summary

The following table summarizes significant differences between this document and the last published version.

<b>Date/Version</b>	<b>Description</b>	<b>Reference</b>
April 2016/v2016 EE	Rebranded for QAD 2016 EE, added link to Preface	--
April 2015/v2015 EE	Rebranded for QAD 2015 EE	--
March 2014/v2014 EE	Rebranded for QAD 2014 EE	--
September 2013/v2013.1 EE	Rebranded for QAD 2013.1 EE	--
March 2013/v2013 EE	Rebranded for QAD 2013 EE	--
September 2012/v2012.1 EE	Rebranded for QAD 2012.1 EE; Consistency edit	--
March 2012/v2012 EE	Rebranded for QAD 2012 EE	--
September 2011/v2011.1 EE	Rebranded for QAD 2011.1 EE	--



# **About this Course**

## Course Description

This QAD Introduction to Costing training guide offers an overview of the concepts and principles of standard and average costing as implemented in QAD Enterprise Applications.

This guide can be taught individually or as a part of the Product Costing and Cost Management course set, which consists of an introductory class, a class covering general setup topics, and a set of classes on specialized costing topics. Most students will benefit from taking the first two classes and then selecting the additional courses that apply to their business implementation. The complete list of classes is:

- Introduction to Product Costing
- Product Costing
- Advanced Repetitive Costing
- Average Costing
- Co/By-Product Costing
- Cost Management, including Simulation and Planning
- Purchase Costing
- Work Order Costing

## Course Objectives

Provides the background and structural framework necessary for the more detailed coursework in all of the individual costing courses.

## Course Benefits

Provides the groundwork needed to advance to other cost courses and provides an overview for those who need/want a conceptual outline without the detail.

## Audience

Finance and operations personnel who need the background to take any of the other cost courses.

## Prerequisites

Basic understanding of the .NET UI

## Course Credit and Scheduling

This course is valid for 6 credit hours and is typically taught in one day.

## Additional Resources

If you encounter questions on QAD software that are not addressed in this book, several resources are available. The QAD corporate Web site provides product and company overviews. From the main site, you can access the QAD Learning or Support site and the QAD Document Library. Access to some portions of these sites depends on having a registered account.

<http://www.qad.com/>

### QAD Learning Center

To view available training courses, locations, and materials, use the QAD Learning Center. Choose Education under the Services tab to access this resource. In the Learning Center, you can reserve a learning environment if you want to perform self-study and follow a training guide on your own.

### QAD Document Library

To access release notes, user guides, training guides, and installation and conversion guides by product and release, visit the QAD Document Library. Choose Document Library under the Support tab. In the QAD Document Library, you can view HTML pages online, print specific pages, or download a PDF of an entire book.

For more information, see *QAD Costing User Guide*.

To find a resource, you can use the navigation tree on the left or use a powerful cross-document search, which finds all documents with your search terms and lets you refine the search by book type, product suite or module, and date published.

### QAD Support

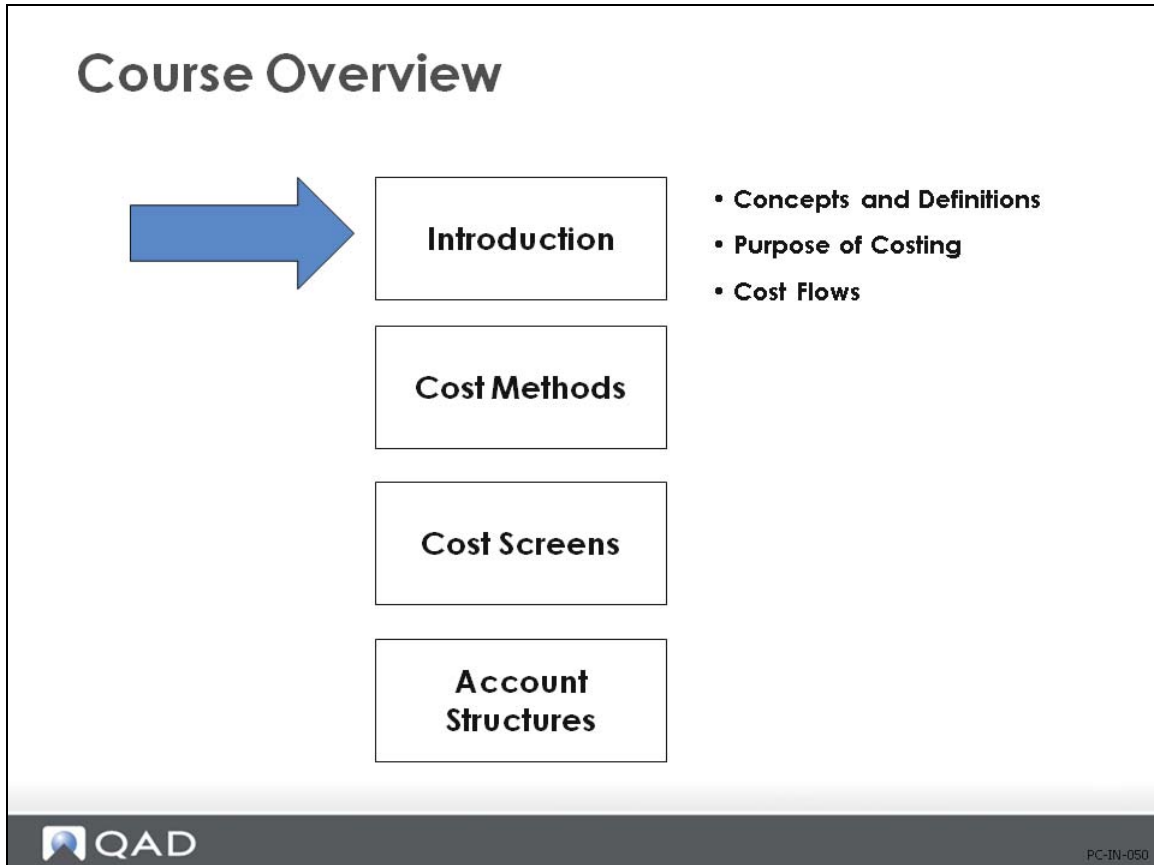
Support also offers an array of tools depending on your company's maintenance agreement with QAD. These include the Knowledgebase and QAD Forums, where you can post questions and search for topics of interest. To access these, choose Visit Online Support Center under the Support tab.

## 4 Training Guide — Introduction to Costing

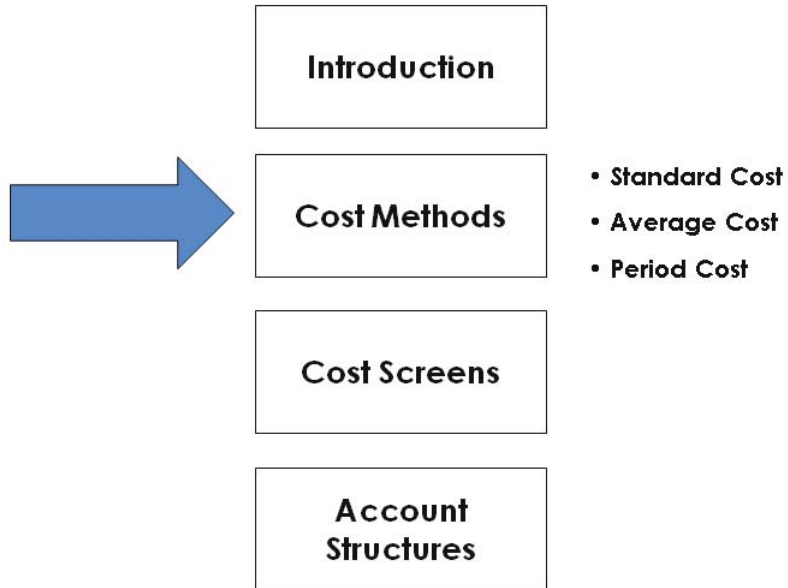
Chapter 1

# **Introduction: Concepts and Definitions**

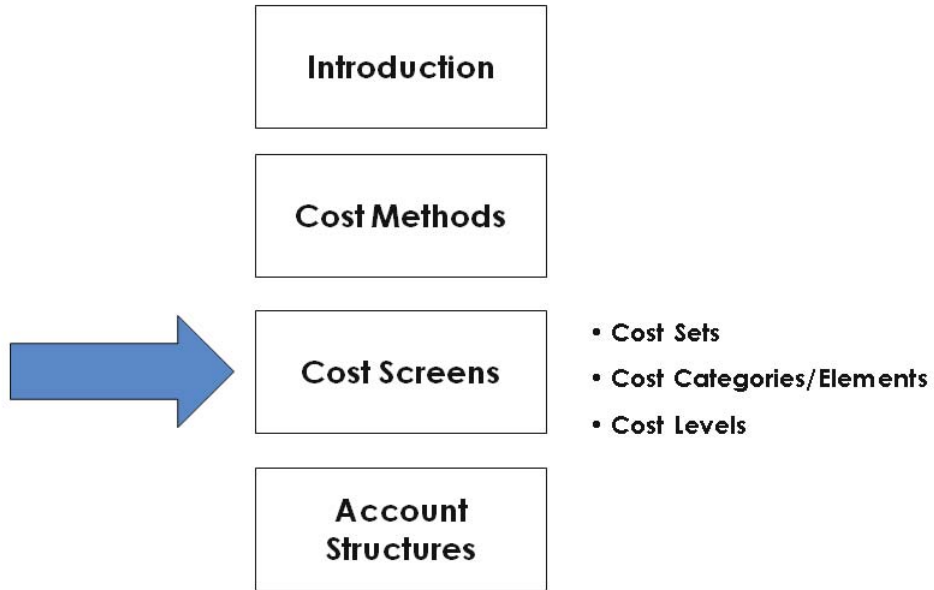
## Course Overview



## Course Overview



## Course Overview



## Course Overview

**Introduction**

**Cost Methods**

**Cost Screens**

**Account Structures**

- **Product Line Accounts**
- **Department Accounts**
- **Site Accounts**

## Course Goals

### Course Goals

- To gain an understanding of how QAD EE cost accounting functions work
- To acquire a framework for setting up an effective product costing system in QAD EE



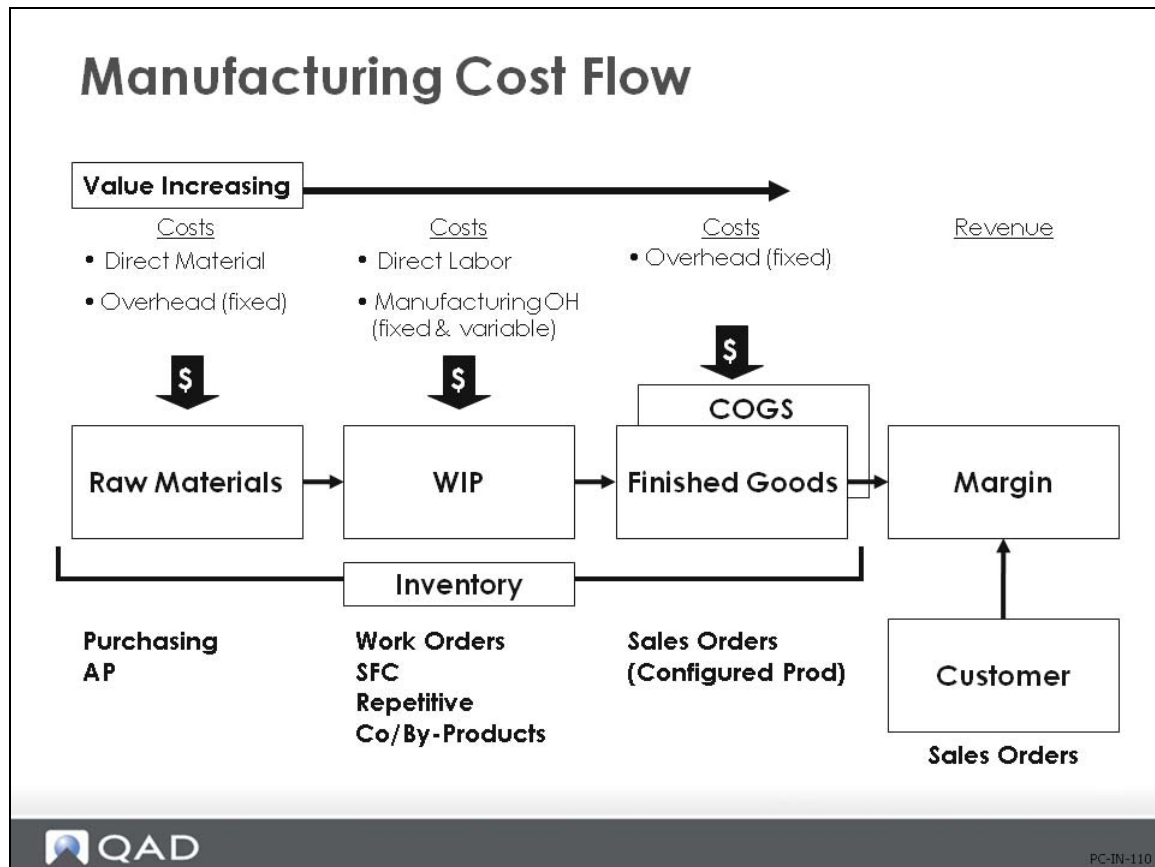
PC-IN-090

## Purpose of Cost Accounting

### Purpose of Cost Accounting

- Determination of product costs for
  - Inventory valuation
  - COGS
  - Cost-plus product pricing models
- Determination of costs for other units of activity
  - Departments
  - Sales territories
  - Customer/industry groups
  - Distribution channels
- Internal performance measurement
- Control and planning

## Manufacturing Cost Flow



### Study Questions

What are the two primary uses of a standard cost?

If you take an item out of finished goods inventory, issue it to WIP, disassemble it, and put the components back into inventory, what are the cost impacts?

## Costing Methods

### QAD Enterprise Applications Costing Methods

- Standard
  - Costs are pre-established and all transactions valued at that cost.
  - Deviations reported as variances.
- Average
  - Costs are re-calculated (averaged) as they occur
  - No variances
- Period
  - Uses values of incoming and outgoing GL transactions from AP and changes to inventory balances between periods
  - Differences written off as change in inventory value
- Periodic
  - Calculates periodic costs using WAVG, FIFO, or LIFO



PC-IN-120

Below is a summary of the QAD Enterprise Applications costing methods. Each method is described in more detail on the pages that follow this summary.

#### Standard

Costs are pre-established and all transactions valued at that cost. Deviations between base settings and actuals transacted are reported as variances.

#### Average

Costs are recalculated as they occur. The costs associated with a transaction are weighted with the existing costs to provide a new average cost. The average cost can be used for valuation as a GL cost for information only as a current cost.

#### Period

This costing method omits the valuation of inventory type transactions and uses the values of the incoming GL transaction from Accounts Payable functions, along with changes to inventory balances between accounting periods. This can be set in Inventory Accounting Control (36.9.2).

## Standard Costing: Example


### Standard Costing: Example

#### Comparison of Standard and Average Costing Methods

	Standard Cost	Inventory Value
Qty on hand = 5 units	10 / unit	<b>50</b> <small>5 × 10 = 50</small>
<b>Purchase 3 units at cost of 20/unit</b>	10 / unit	<b>80</b> <small>(5 + 3) × 10 = 80</small>
<b>Use 4 units</b>	10 / unit	<b>40</b> <small>(8 - 4) × 10 = 40</small>

---

**This would cause a Purchase Price Variance in this example:**  
 (Standard Material Cost - PO Cost) × Quantity Received  
 (10 - 20) × 3 = 30 unfavorable variance

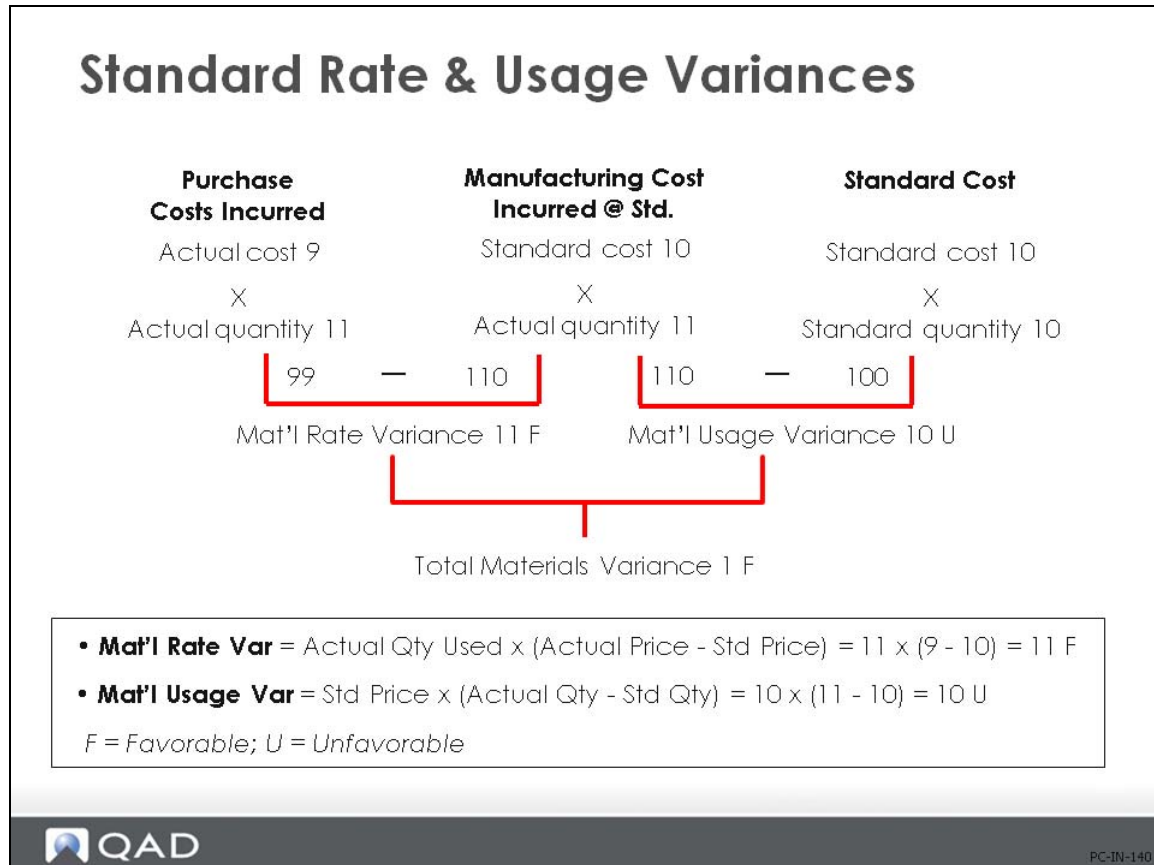

PC-IN-130

A standard cost for a product consists of a price standard (price for material; rate for labor and manufacturing burden) and a quantity standard (quantity for material; time for labor; quantity or volume for manufacturing burden). The combination of price and quantity yields what is planned or expected for a specific interval of time and set of conditions. Cost for Overhead and Subcontract costs are set up and included in the Inventory value.

- Setting standards for price and quantity involves management judgements, industrial engineering studies, work measurement studies, vendor analyses, as well as a number of other techniques

Once set, the standard cost of an item is used as the basis for all accounting entries for inventory related transactions (see figure above). Standard costs cover a specific period, usually a year. They can be evaluated and changed at any time.

## Standard Cost: Variances

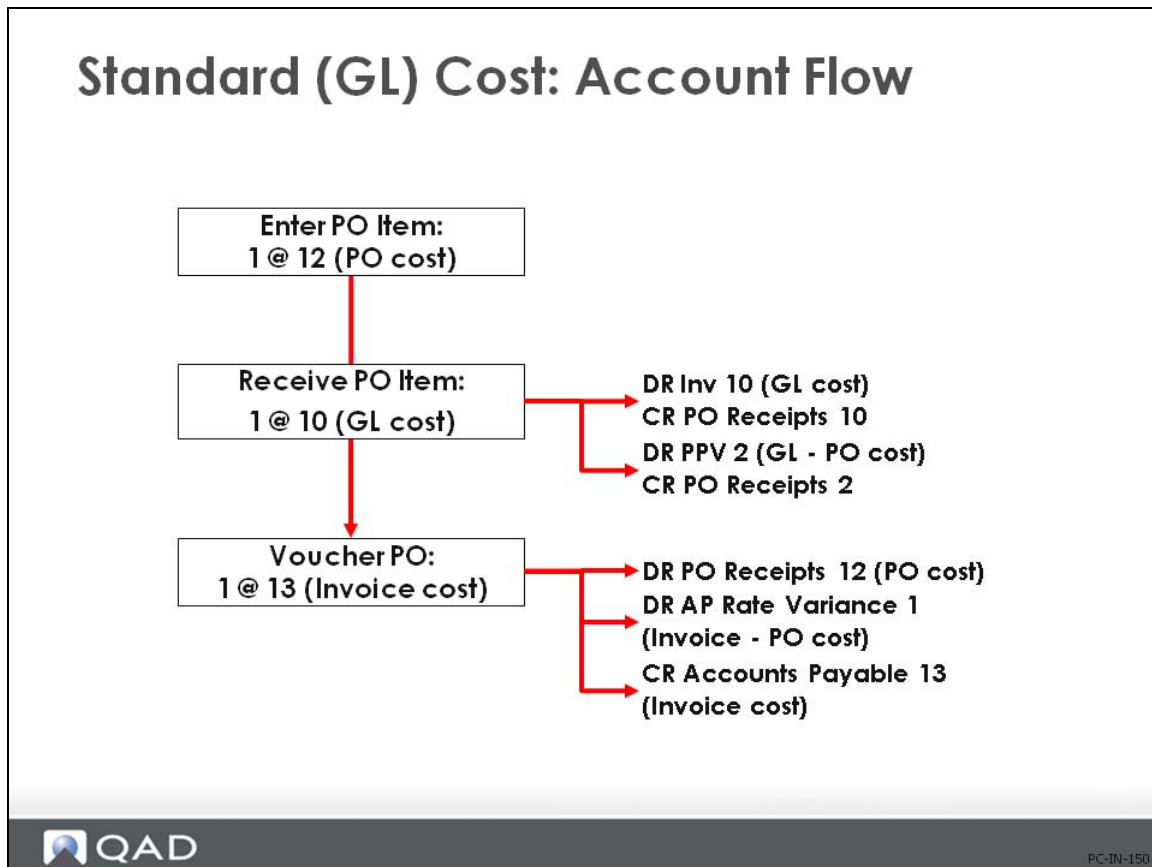


Because the standard is only a target or estimate of what an item will cost, the costs incurred rarely match the standard exactly. In order to account for the difference between standard costs and actual costs, variances are calculated and recorded.

- Variances are calculated as the difference between Standard and Actual costs and are defined as Total Variance. Total Variance can be subdivided into Price and Efficiency components called Rate and Usage in QAD Enterprise Applications (see figure above).
- Price or rate variance occurs when the actual purchase cost of a resource differs from the standard rate and is calculated based on the actual quantity purchased.
- Usage or efficiency variance occurs when the actual quantity transacted is different than the standard quantity that was defined and calculated using the standard cost. For example, if quantities of components issued are different than those defined and calculated using the standard BOM, or additional non-standard components are issued.

**Note** An adverse variance is not necessarily an indication of underachievement. For example, a corporation can make allowances in its operating budget for unfavorable variances if standard costs cover a long period of time. Conversely, a purchasing department can be sent a budgeted favorable price variance to achieve when operating in a “cost down” environment with its customers and suppliers.

## Standard (GL) Cost: Account Flow



**Example** The example in the figure above shows how the general ledger uses variances to balance standard and actual costs. An item has a GL cost of 10. A purchase order is issued to purchase one for 12; its PO cost. When the invoice arrives, the supplier has charged 13.

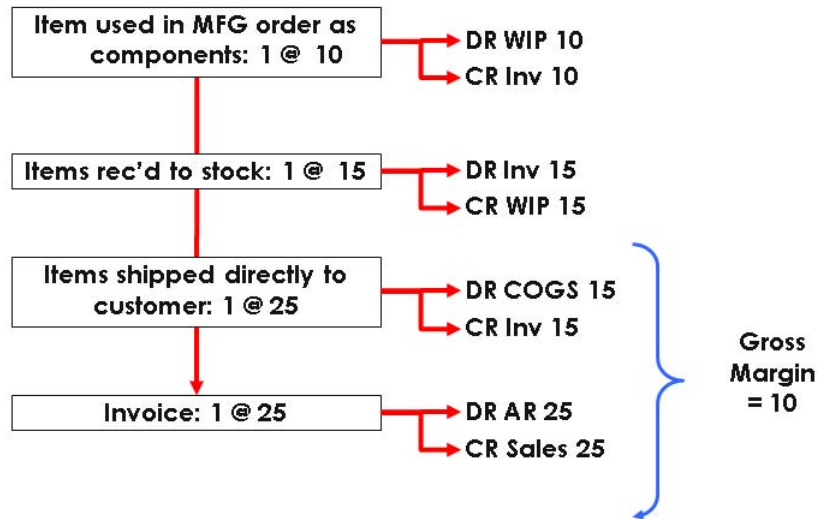
- PO Receipt

When the item arrives, the Inventory account is debited for the 10 GL cost and the PO Receipts account is credited 10. The Purchase Price Variance account is debited 2 (the difference between the item's PO cost and its GL cost) and the PO Receipts account is credited 2.

- Supplier Invoice Maintenance

An invoice is received and the supplier has charged 13 (1 over the PO cost) for the item. If it is decided to accept this increase and continue vouchering, the PO Receipts account is debited 12 (PO cost). The Accounts Payable account is credited 13 (invoice cost) and the Accounts Payable Rate Variance account is debited 1 (the difference between the PO cost and invoice cost).

## Standard (GL) Cost: Account Flow, cont.



PC-IN-160

When items are taken from inventory and issued to manufacturing or shipped to a customer, the value of inventory is decreased at GL cost. Let's see what happens when the purchased pens are issued.

- **Manufacturing**

The item is issued to the work order. Inventory is credited 10 (issued to the work order). Work in Process (WIP) is debited 10. The cost of the process of 5 is added to component cost so that the end item cost is 15. WIP is debited and a recovery account (Labor/Burden/Overhead Absorption) is credited with 5. Inventory is debited and WIP is credited 15 at Work Order receipt time.

- **Sales shipment**

Items shipped from stock decrease (credit) the inventory value by 15. Cost of goods is debited 15. The actual selling price of 25 is not recorded until the invoice is created. The difference of 10 is the gross margin.

- **Invoice**

When you print and then post the invoice, you debit Accounts Receivable 25 and credit Sales 25


## Average Costing: Example

	Value	Total Units	Total Value	Average Cost
<b>Purchase 5 at cost of 10/unit</b>	<b>50</b> (10×5)	<b>5</b>	<b>50</b>	<b>10.000</b> (50, 5)
<b>Purchase 3 at cost of 20/unit</b>	<b>60</b> (20×3)	<b>8</b> (5 + 3)	<b>110</b> (50+ 60)	<b>13.75</b> (110, 8)
<b>Use 4 at cost of 13.75/unit</b>	<b>55</b> (13.75×4)	<b>4</b> (8 - 4)	<b>55</b> (110 - 55)	<b>13.75</b> (55, 4)

\* **Average Cost =**  

$$\frac{(\text{opening qty on hand} \times \text{opening avg cost}) + (\text{qty rec'd} \times \text{rec'd cost})}{(\text{opening qty on hand} + \text{qty rec'd})}$$


PC-IN-170

The average cost method simply keeps a running average of what an item is costing rather than estimate what an item should cost as standard costing does.

### Average Costing Defined

With the average costing method, the average cost of goods available for sale is not predefined by you; rather it is computed and the units in both the cost of goods sold and ending inventory are costed at this average cost. It is a weighted average. That is, each unit cost is weighted by the number of units with that cost. In QAD Enterprise Applications, a new average unit cost is calculated after each receipt and optionally during supplier invoicing.

**Note** Only receipts update the average cost.

For purchased items, the quantity received is multiplied by the purchase order price and added to the quantity on-hand multiplied by the current average material cost. This sum is divided by the new quantity on-hand to determine the new average material cost. The value of inventory is adjusted to reflect this new average cost. (See example in figure.)

- Each time an item is received, the average cost is recalculated as:

$$[(\text{opening qty on-hand} * \text{opening avg cost}) + (\text{qty rec'd} * \text{rec'd cost})] / (\text{opening qty on-hand} + \text{qty rec'd})$$

**Note** If you use the average costing method for GL costs, you must use the Cost Management module. Average Costing is described in more detail in *Training Guide: Average Costing*.

## Period Costing

### Period Costing

- Costs are expensed in period incurred
- Perpetual inventory not used
- Inventory valuation by transactions is turned off by setting Create GL Transactions to No in Inventory Accounting Control (36.9.2)
- Valuation of inventory and Costs of Goods Sold calculated from physical inventory counts and from purchase transactions



PC-IN-180

Period costs are determined by tracking the beginning inventory balance, adding purchased material and value added to inventory (labor costs), and then deducting the ending inventory. No perpetual inventory records are maintained; the GL handles tracking and reporting. Accounting records are updated periodically.

To use QAD Enterprise Applications for period costing, all inventory-related transactions are turned off in the Inventory Accounting Control (36.9.2), so that all issues, transfers, and receipt transactions do not create GL transactions. The valuation of inventory and cost of goods sold is calculated from physical inventory counts, and purchase and sales transactions from Accounts Payable. Period costing is a method usually not used by QAD Enterprise Applications customers for financial valuation.

## Periodic Costing

### Periodic Costing

- Calculates inventory valuation based on
  - Inventory transactions
  - Shop floor transactions
- Calculations include
  - WAVG – weighted average
  - FIFO – first in first out
  - LIFO – last in first out



PC-IN-190

Periodic costing is a cost method for inventory valuation that calculates periodic item unit costs based on inventory and shop floor transactions. Periodic costing uses cost-calculation formulas such as weighted average (WAVG), first in first out (FIFO), and last in first out (LIFO) that support:

- Local legal requirements for certain countries
- International financial Reporting Standards (IFRS) guidelines
- Business practices in corporations with regards to inventory valuations

Programs on the Periodic Costing menu (30.5) optionally calculate the cost of an item based on recorded data, such as inventory transactions, BOMs, routings, purchase prices, and labor/burden expenses over a certain user-defined period. The period can be any length, up to an entire GL period. Under most circumstances, periodic costing considers the beginning balance of the item while it is performing calculations. It then batch generates GL transactions based on the calculations.

### Study Questions

What are the three cost methods supported by QAD?

What is a major difference between standard and average costing?

## Terminology and Basic Concepts

### Terminology and Basic Concepts

- Reading the cost screens
- Cost Sets
- Cost Categories
- Cost Elements
- Level Codes
- Phantom Structures
- Sites and Entities
- Product Line
- Direct vs. Indirect
- Fixed vs. Variable
- Burden vs. Overhead
- Absorbed vs. Applied



PC-IN-200

A few key terms are defined and concepts described in this section.

## Reading the Screen

**Reading the Screen**

Item Cost Maintenance

Item: 01010    Item Number: 01010 (2)    Tax Class:

Item Number: 01010    Description: Medical Ultrasound

Unit of Measure: EA

Totals: 579.27275 + 1,226.17882 = 1,805.45157

GL Cost Data (GL Cost Source Site 10-100 / Set Standard)

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	1,219.92	1,219.92	<input checked="" type="checkbox"/>	Material	<input type="checkbox"/>
Labor	577.50	6.17	583.67	<input checked="" type="checkbox"/>	Labor	<input type="checkbox"/>
Burden	1.77275	0.08882	1.86157	<input checked="" type="checkbox"/>	Burden	<input type="checkbox"/>
Overhead	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Overhead	<input type="checkbox"/>
Subcontr	0.00	0.00	0.00	<input type="checkbox"/>	Subcontr	<input type="checkbox"/>

**Add up columns**  
• Total cost by level

**Add across rows**  
• Total cost by element

QAD PC-IN-210

The figure above provides a quick orientation to reading the cost information in item maintenance screens: Item Master Maintenance (1.4.1), Item Cost Maintenance (1.4.9), and Item Site-Cost Maintenance (1.4.18).

**Note** The A/O (Add On) column is not currently in use. It is a placeholder for future costing enhancements.

## Cost Sets in QAD EE

**GL Cost Set**

- Valuation of inventory
- Standard or Average

**Current Cost Set**

- Tracking and comparison
- Maintained as Avg, Last or None

Item Cost Maintenance (GL Cost Source Site: 10-100 / Set: Standard)

Element	This Level
Material	0.00
Labor	577.50
Burden	1.77275
Overhead	0.00
Subcontr	0.00

Item Cost Maintenance (Current Cost Source Site: 10-100 / Set: Current)

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	1.225.88391	1.225.88391	<input checked="" type="checkbox"/>	Material	<input type="checkbox"/>
Labor	393.04229	0.29184	393.33412	<input checked="" type="checkbox"/>	Labor	<input type="checkbox"/>
Burden	1.21895	0.0042	1.22315	<input checked="" type="checkbox"/>	Burden	<input type="checkbox"/>
Overhead	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Overhead	<input type="checkbox"/>
Subcontr	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Subcontr	<input type="checkbox"/>

The term cost set is used to identify cost records in the system. QAD Enterprise Applications has two default cost sets—GL and Current—that are available for each site, but it can have additional cost sets, too. Cost sets have multiple uses.

### Maintain General Ledger Item Costs (GL Cost Set)

GL cost is a term that distinguishes costs used for valuing inventory and for determining cost of goods sold from other costs such as current costs. GL costs can be based on either a standard or an average cost method.

### Maintain Current Item Costs (Current Cost Set)

The current cost of an item is normally based upon recent production and/or purchases. Current costs are the actual costs from inventory receipts and work order labor transactions.

- When the method used for the GL cost set is standard costing, the current cost set can be used to track the running average or last cost for use in determining next year's standard cost or for providing a record of recent actual costs
- Methods that can be used with current are Last, Average or None

Last: Each receipt sets the current cost to the last cost of that item. In the case of purchased material, this is the purchase or invoice price.

Average: Whenever an item is received, the new average cost is calculated and stored in the cost set

None: Current costs are maintained manually in the system or not used

#### Maintain Historical Item Costs

Historical costs (standard or current) are costs from prior periods that are used for comparison purposes. These costs are stored in one of the additional cost sets of the Cost Management module.

#### Develop Simulated Item Costs

Simulated costs are costs used for planning purposes to evaluate the effects of differing scenarios of, for example, material price inflation, or batch size, labor and burden rate changes. These costs are stored in one of the additional cost sets of the Cost Management module.

#### Maintain Frozen Standard Costs

Once standard costs are established, you can freeze them to prevent costs from being recalculated. Any cost set can be frozen. Running the Cost Roll-Up Freeze/Unfreeze (13.12.1) marks item costs for this cost set and site as frozen. When QAD Enterprise Applications routing and product structure cost roll-up functions see that an item cost has been frozen, the roll-up simply uses the existing frozen cost; it does not recalculate it.

**Note** Only one set of GL and Current costs are allowed per site.

## Cost Categories

The screenshot displays the 'Item Cost Maintenance' window for Item 01010, 'Medical Ultrasound'. It shows a table of GL Cost Data with the following data:

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	1,219.92	1,219.92	<input checked="" type="checkbox"/>	Material	<input type="checkbox"/>
Labor	577.50	6.17	583.67	<input checked="" type="checkbox"/>	Labor	<input type="checkbox"/>
Burden	1.77275	0.08882	1.86157	<input checked="" type="checkbox"/>	Burden	<input type="checkbox"/>
Overhead	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Overhead	<input type="checkbox"/>
Subcontr	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Subcontr	<input type="checkbox"/>

There are five categories of costs tracked for each cost set. These categories, described below, are tracked for both this-level and lower-level costs in QAD Enterprise Applications and contain cost elements that, by default, have the same name as the category. (“This level” refers to costs incurred at the level at which you define the item; “lower level” refers to costs associated with the item’s components or manufactured items in the BOM.)

### Material

Represents the cost of purchased materials.

For purchased items, the material cost is maintained in the This Level Material field by manually entering the data in the item cost maintenance screens: Item Master Maintenance (1.4.1), Item Cost Maintenance (1.4.9), or Item Site Cost Maintenance (1.4.18).

For manufactured items, the material cost is maintained in the Lower Level Material field by rolling up the product structure costs using Product Structure Cost Roll-Up (13.12.13).

### Labor

Represents the direct labor cost applied to this product, including setup labor. Labor cost is calculated from labor rates and run/setup hours at each operation in a product’s routing.

It is updated at This Level by running a Routing Cost Roll-Up (14.13.13) and updated for Lower Levels by running a Product Structure Cost Roll Up (13.12.13). You would not expect to have labor costs for purchased items.

### Burden

Represents the variable overhead cost applied to this product, based on labor and/or machine burden rates.

As with labor, burden cost is maintained for This Level through Routing Cost Roll-Up (14.13.13). Burden cost is updated for Lower Levels by running a Product Structure Cost Roll-Up (13.12.13). You would not expect to have burden costs for purchased items. Burden costs can also be updated by using Item Burden Cost Update (1.4.20).

### Overhead

Represents the fixed overhead cost for this item - for example, utilities. Another example would be the expense of operating purchase or supplier logistics functions, which could be recovered as fixed overhead on all purchased items based on a percentage of their cost. This is often a better solution than the arbitrary addition of such costs to general burden.

Overhead cost is maintained manually for each item in item cost maintenance screens: Item Master Maintenance (1.4.1), Item Cost Maintenance (1.4.9), or Item Site Cost (1.4.18). Or it can be maintained by assigning it as a percentage of other cost categories in Item Overhead Cost Update (1.4.21).

For purchased materials, you would normally see only This Level overhead costs, but for manufactured items, you might have both This Level and Lower Level overhead costs. Overhead cost is updated for lower levels by running a Product Structure Cost Roll-Up.

### Subcontract

Represents the cost of outside processing as entered in each routing operation for manufactured items in Routing Maintenance (14.13.1).

Subcontract cost is updated by Routing Cost Roll-Up (14.13.13) for This Level, and Product Structure Cost Roll-Up (13.12.13) for Lower Level costs.

## Cost Elements

**Cost Elements**

Item Cost Maintenance

Item Number: 01010 Description: Medical Ultrasound  
Unit of Measure: EA

Totals						
Totals:	579.27275	1.226.17882	1.805.45157	<input type="checkbox"/>	06/28/10	<input type="checkbox"/>

GL Cost Data (GL Cost Source Site: 10-100 / Set: Standard)

Element	This Level	Lower Level	Total	Pri	Category	A/O
Material	0.00	1,219.92	1,219.92	<input checked="" type="checkbox"/>	Material	<input type="checkbox"/>
Labor	577.50	6.17	583.67	<input checked="" type="checkbox"/>	Labor	<input type="checkbox"/>
Burden	1.77275	0.08882	1.86157	<input checked="" type="checkbox"/>	Burden	<input type="checkbox"/>
Overhead	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Overhead	<input type="checkbox"/>
Subcontr	0.00	0.00	0.00	<input checked="" type="checkbox"/>	Subcontr	<input type="checkbox"/>

QAD PC-IN-240

Cost elements group different types of costs within a single cost category.

- All costs are associated with a cost category: material, labor, burden, overhead, or subcontract. When item costs are rolled up, totals are maintained for each category. Each cost category must have at least one cost element.
- The default cost elements - material, labor, burden, overhead, and subcontract - are created whenever costs are copied from a current or GL cost set

**Note** Other cost elements can be added by using the Cost Management module. The additional cost elements can record different types of costs or further subdivide these categories. For example, if material costs include purchasing unit cost, purchase overhead, and transportation charges, a separate cost element can be set up for transportation charges, allowing you to track costs and simulate the effect of changes. (See Cost Management Course.) These new cost elements still belong to one of the five cost categories, which control posting to the GL.

## Study Questions

What are the five cost categories in QAD applications?

What are the two default cost set names in QAD applications?

What is the point of the two cost sets in a standard cost system?

If you want to retain a cost set reflecting the prior years ending cost what module would you use?

## Levels

### Levels

Item-Site Cost Inquiry - 9/15/20... x

**Item-Site Cost Inquiry** 09/15/10

**QAD**

Item Number: 01010      Medical Ultrasound  
 Inv Site: 10-100      UM: EA      Output: PAGE

Price: 2,500.00      Item Price Data  
 Tax: No      Tax Class:

Fiscal Class:

Totals				
Totals:	579.27275	1,226.17882	1,805.45157	06/28/10

GL Cost Data (GL Cost Source Site: 10-100 / Set: Standard)

Element	This Level	Lower Level	Total Pri	Category	A	0
Material	0.00	1,219.92	1,219.92	Yes	Material	No
Labor	577.50	6.17	583.67	Yes	Labor	No
Burden	1.77275	0.08882	1.86157	Yes	Burden	No
Overhead	0.00	0.00	0.00	Yes	Overhead	No
Subcontr	0.00	0.00	0.00	Yes	Subcontr	No
Totals						
Totals:	394.26124	1,226.17994	1,620.44118			07/24/10

Current Cost Data (GL Cost Source Site: 10-100 / Set: Current)

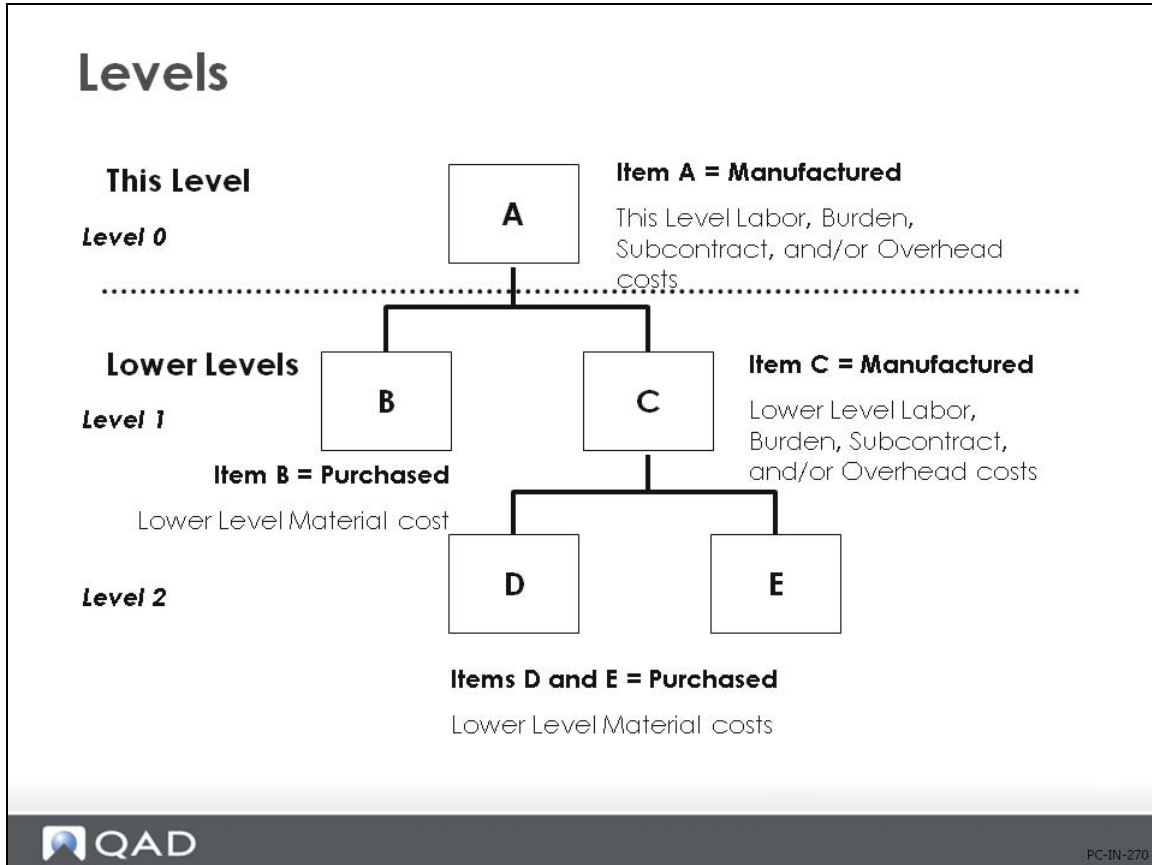
Element	This Level	Lower Level	Total Pri	Category	A	0
Material	0.00	1,225.88391	1,225.88391	Yes	Material	No
Labor	393.04229	0.29184	393.33412	Yes	Labor	No
Burden	1.21895	0.0042	1.22315	Yes	Burden	No
Overhead	0.00	0.00	0.00	Yes	Overhead	No
Subcontr	0.00	0.00	0.00	Yes	Subcontr	No

Costs added at this stage of manufacturing

Costs added at prior stages of manufacturing

PC-IN-260

Costs added at the current stage of manufacturing are called This Level costs (level 0); costs added at prior stages of manufacturing are called Lower Level costs (levels 1 through 99). These are discussed in more detail on the following page.



### This Level

This Level costs are the costs to either obtain or produce an item. Thus, a purchased item has This Level material (and optionally material overhead) cost, but it has no Lower Level costs. Likewise, a manufactured part has This Level labor, subcontract, burden, and overhead cost, but normally no This Level material cost. The manufactured item will, however, have Lower Level material cost for components and possibly Lower Level labor, material, subcontract, burden and overhead if the structure has more than two levels.

### Lower Level

Lower Level costs represent costs that are added at prior stages of manufacturing. Lower Level material costs are the costs of all purchased materials used in the final manufactured product and any subassemblies. Lower Level labor, burden, and subcontract costs are developed from the cost of making any lower-level subassemblies.

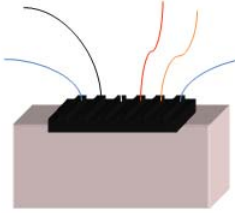
## Phantom

### Phantom Structures

**Phantom: A non-stocked sub-assembly**

**What?**

**Example 1**  
A wire harness that exists only briefly on the assembly line as a separate sub-assembly




**Also called**

- Pseudo Part
- Transient Part
- Blow-Through Part

**Why?**

1. Engineering needs to isolate this sub-assembly in their plans
2. The service department may need to issue work orders to make some for repairs

 PC-IN-280

Phantom items are used in manufacturing to define items that are made and consumed in the production process without being inventoried. They represent a method of defining bills of material and formulas to satisfy design/engineering, cost, and production. They can be set as Local phantoms, Global phantoms, or both.

### Global Phantoms

Global Phantoms are defined in Item Master Maintenance (1.4.1), Item Planning Maintenance (1.4.7), or Item-Site Planning Maintenance (1.4.17) and identify this item as a phantom on all bills of material.

### Local Phantoms

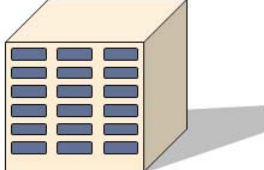
Local phantoms are defined by an asterisk (\*) in the Product Structure code field in Product Structure Maintenance (13.5) for each bill of material where this item is to be considered a phantom. Local phantoms can cause manufacturing variances if they have This Level costs.

Phantoms are discussed in more detail later in the course.

## Domain, Sites, Entities, and Locations

### Domain, Sites, Entities, and Locations

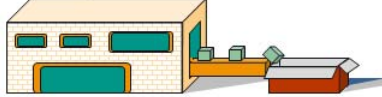
**North American Domain 11ACONS**




**Consolidation Entity**

- A *domain* is business unit that may have several entities
- An *entity* is a business that publishes financial statements and files tax returns
- A *site* is a unit used for inventory planning and control
- A *location* is a specific inventory area


**US Entity 10USA-CO**



**Site = 10-100**  
**Ultrasound Equipment**



**Location = 010**  
**Finished Goods**


PC-IN-290

**Domain.** A domain is a high-level corporate structure that can have many entities. It can be used to provide an accounting template for the entities.

**Entity.** An entity is an independent unit for financial reporting purposes, a separate balance sheet and income statement are generated by entity, budgets are planned by entity, and taxes are assessed by entity. All GL transactions are posted by entity.

**Site.** A site is an inventory and planning concept. All inventory is stored by site and all planning is done by site. Each site belongs to one and only one entity, but each entity can have more than one site. Site 10-100 is an examples of a site.

Because each site is attached to an entity, the site on any transaction is used to determine which entity to post the inventory transaction to in the GL.

**Location.** A location is a specific inventory storage area. Each site can have as many locations as needed. Location 010 is an example

**Note** Balance sheets cannot be produced by site, only by entity unless you have a single entity for each site in the system. However, you can use sub-accounts or cost centers to get profit/loss statements and activity reports by site. If you have multiple sites in a single entity, you cannot generate a balance sheet by site, because retained earnings and year-to-date profit/loss are only maintained in aggregate by entity.

## Product Lines

### Product Lines

- Product lines group items by similarities in manufacture or application
- Items must belong to only one product line
- Product lines identify which GL accounts will be used for sales, inventory, purchasing, work orders, or service transactions



PC-IN-300

Product lines group items for reporting, planning, and accounting purposes:

- Reports can be selected and sorted by product line
- Product Line Planning and MRP/DRP can plan by product line
- You can track sales, costs, inventory values and variances in the general ledger by product line

Every item belongs to only one product line. The item's product line determines whether it is included on a report, or in calculations, and which GL accounts to post to. (Some GL accounts can be taken from the product line or further specified by site, location, or customer type.)

Different departments can have different criteria for grouping items; marketing might want product lines to reflect target markets, manufacturing to reflect production method. Or you might want to establish different product lines for not easily grouped items like raw materials or common components to separate them from finished goods.

See Chapter 2, "Account Structures," on page 39, for more details on product lines.

## Direct and Indirect Costs

### Direct and Indirect Costs

- Direct costs are those costs that can be attributed to a single unit of production
- Indirect costs, or overhead, are production costs that cannot or will not be directly traced to a single unit of production



PC-IN-310

The terms “direct” and “indirect” relate to the traceability of costs. Conceptually, any cost that can be traced to a single product is a direct cost of that product. This includes the cost of all material and labor that goes into making the product, as well as the cost of any subcontract operations. All production costs other than direct costs are considered indirect, or an overhead.

## Fixed and Variable Costs

### Fixed and Variable Costs

- Variable costs tend to vary in direct proportion to the level of activity
  - Labor is an example
- Fixed costs do not vary in relation to the level of activity
  - Rent is an example



PC-IN-320

The terms “fixed” and “variable” relate to the behavior of costs as production volume fluctuates. Variable costs increase directly with increase in volume. Fixed costs, such as rent and utilities costs, do not change, at least in the short term. For example, you still have to pay to heat and light your factory, regardless of the volume of production.

## Absorbed vs. Applied Amount

### Absorbed vs Applied Amounts

- Burden is absorbed based on activity on the shop floor
- Overhead is applied based on the number of units received through manufacturing or purchasing



PC-IN-330

As production is reported, burden costs are absorbed; that is, the standard per unit costs are credited to the burden absorption account based on actual shop floor activity.

When finished items are received, the standard per unit overhead cost is credited to the Applied Overhead account.

When predetermined burden and overhead rates are used, the actual amount absorbed to production in a given month is likely to differ from the total amount of overhead cost actually incurred. This is because production volumes vary from the volume estimates used to determine these rates.

## Burden vs. Overhead

### Burden vs Overhead (1 of 2)

- Overhead, as it is used in QAD EE, is split into two parts:
  - Burden (variable overhead)
  - Overhead (fixed overhead)
    - Fixed overhead set manually, 1.4.1, 1.4.9, or 1.4.18 or as a percentage of some other cost category, 1.4.20 (Burden), 1.4.21 (Overhead)



PC-IN-340

Burden is the variable portion of overhead cost. In a standard cost system, standard burden per unit is usually calculated based on predetermined burden rates, typically based on labor or machine hours and/or labor cost.

Overhead is the fixed portion of overhead cost. In a standard cost system, a portion of fixed overhead cost per unit is usually allocated to each item, either manually or as a percentage of some other cost category. For example, fixed overhead can be set to a percentage of material cost.

Characteristics of fixed overhead:

- Fixed amount within a relevant product output range
- Manually calculated by dividing the annual expected overhead costs by the annual expected number of units to be produced. Because total overhead is fixed, as output increases, the cost per unit must decrease.
- Management-level decision on incurrence starts at executive level vs. operating supervisors

**Example** Depreciation, rent, insurance, real property taxes, patent amortization, wages for production executives, watchmen, firemen, janitors, maintenance and repairs, insurance, rent

Characteristics of variable overhead:

- Variable amount in direct proportion to output


- Calculated by QAD Enterprise Applications by multiplying the actual number of units produced by a pre-determined burden rate. Because total burden is variable, as output increases, cost per unit is constant.
- Easily assignable to operating departments
- Incurrence decision rests at department level

**Example** Supplies, fuel, power, small tools, spoilage/salvage/reclamation expense, receiving costs, royalties, factory travel costs

## Burden vs Overhead (2 of 2)

<ul style="list-style-type: none"> <li>• Burden*               <ul style="list-style-type: none"> <li>- Direct</li> <li>- Variable</li> <li>- Absorbed</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Overhead*               <ul style="list-style-type: none"> <li>- Indirect</li> <li>- Fixed</li> <li>- Applied</li> </ul> </li> </ul>
---	---

\* As used throughout this course and as it pertains to QAD Enterprise Applications


PC-IN-350

A summary of key differences between Burden and Overhead is shown in the figure above.

### Study Questions

What are some examples of an indirect fixed cost?

Is the maintenance cost of a machine that must be serviced every 5,000 parts, burden or overhead? Fixed or variable?

## Business Issues

### Business Issues

- Costing method
- Multiple sites/entities
- Work order or repetitive environment
- Discreet or process production
- Product changes
- Configured products
- Overhead and burden
- Scrap and yield

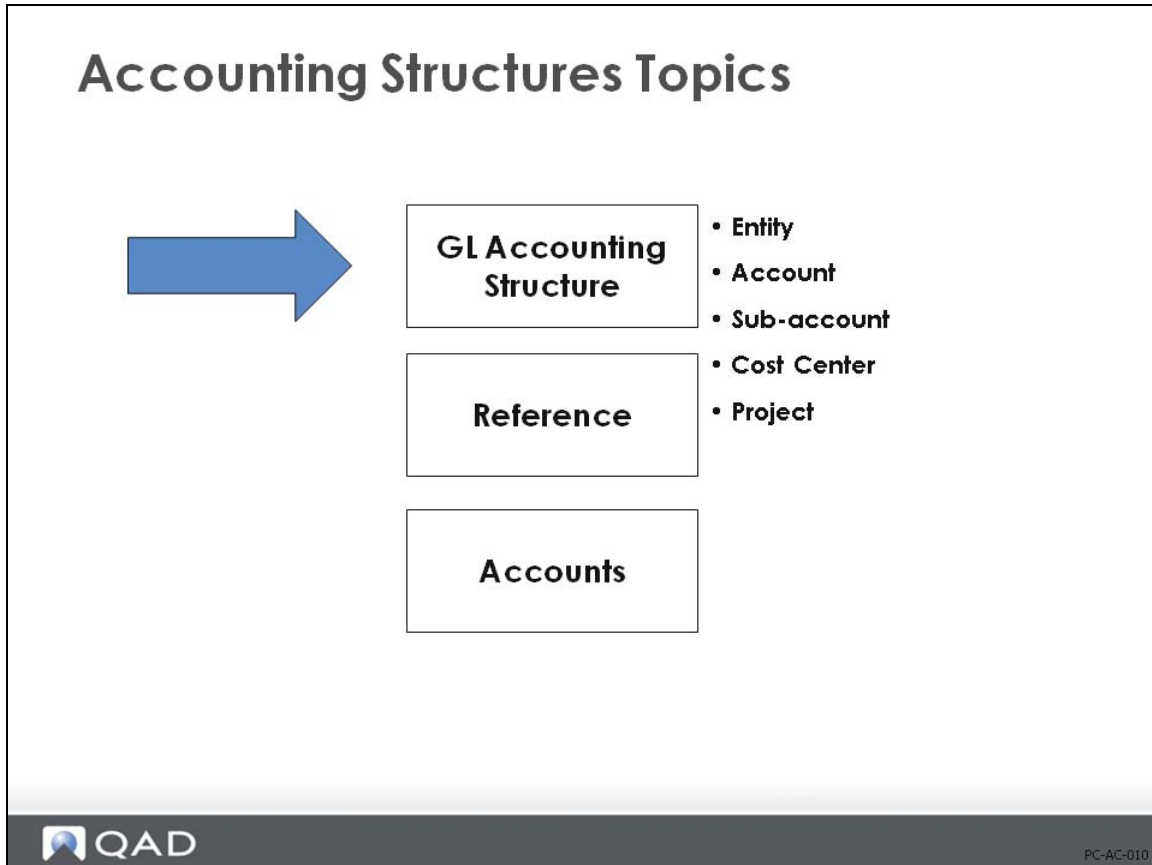


PC-IN-360

Chapter 2

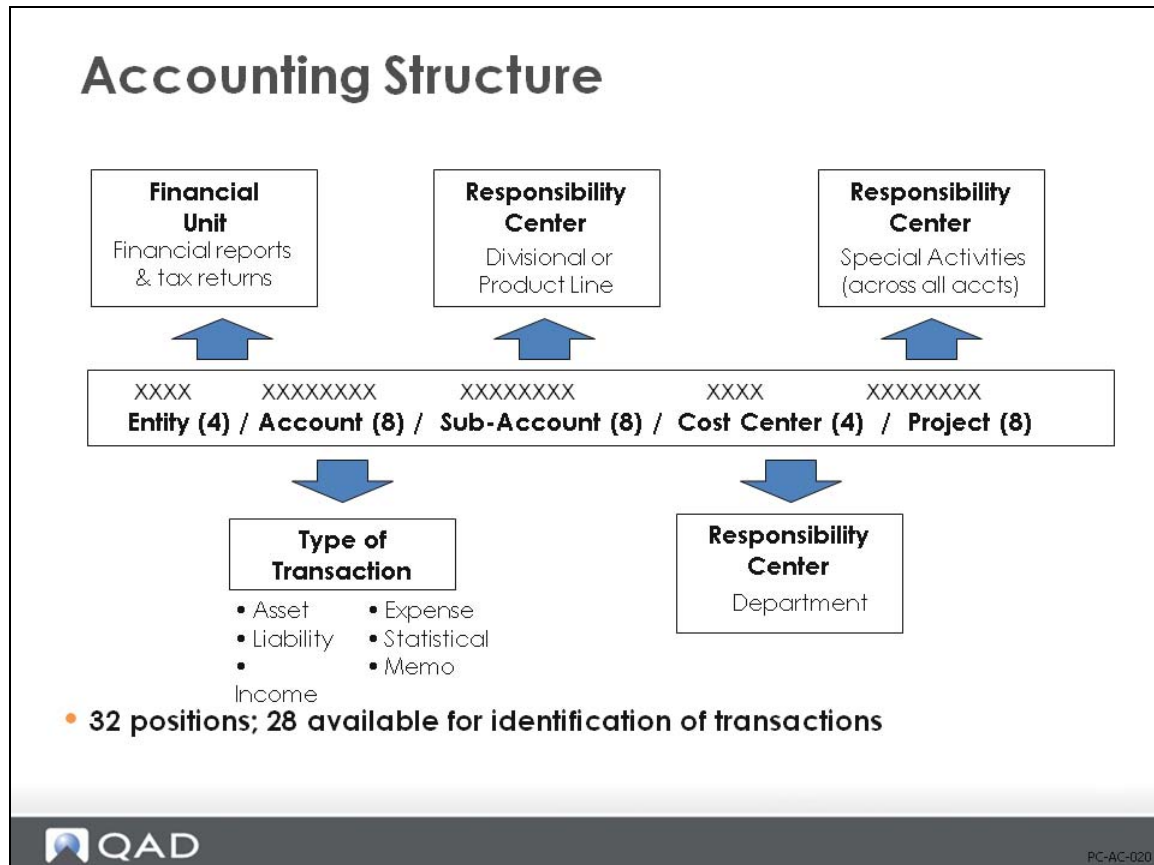
# **Account Structures**

## Accounting Structures Topics



The components of the accounting structure —entity, account, sub-account, cost center, and project—are discussed in this section.

## GL Accounting Structure



In the general ledger (GL), you have a 32-position coding structure for use in tracking financial information.

**Entity.** Defined with up to four positions, the term “entity” identifies a legal financial unit of a company. This unit of the company normally publishes separate financial reports and files separate tax returns.

**Account.** Defined with up to eight positions, the term “account” identifies types of financial holdings and obligations. When accounts are entered into the system, they must be defined as either an asset, expense, income, liability, memo, or statistical account type. They are also associated to format positions that define how these accounts will be presented on the financial reports.

**Sub-Account.** Sub-accounts are used to develop more detailed financial information within an account code. For example, sub-accounts might be used to break inventory accounts down by type of inventory—raw material and finished goods. Or they might be used to break inventory out by product line. All financial reports can be selected and sorted by sub-account.

**Cost Center.** Defined with up to four positions, cost centers are typically used to track departmental expenses. They are usually departments or groups that incur expenses and might or might not generate revenue. Cost centers provide additional detail on GL reports. They can also be used to subdivide accounts by product line (such as sales or WIP).

*Project.* Defined with up to eight positions, project codes are used to track activity that is not part of the normal routine. Examples of what you can track with project codes include new product development and engineering, capital improvement activities, or marketing promotional activities. Often, a characteristic of these activities is that they will cross organizational boundaries and be comprised of a variety of cost types. The project codes allow you to track costs across these boundaries. Project codes can be entered on all GL, sales, AR, purchasing, AP, and manufacturing transactions. Project amounts do not appear itemized on financial statements, but can be reviewed on special project activity reports.

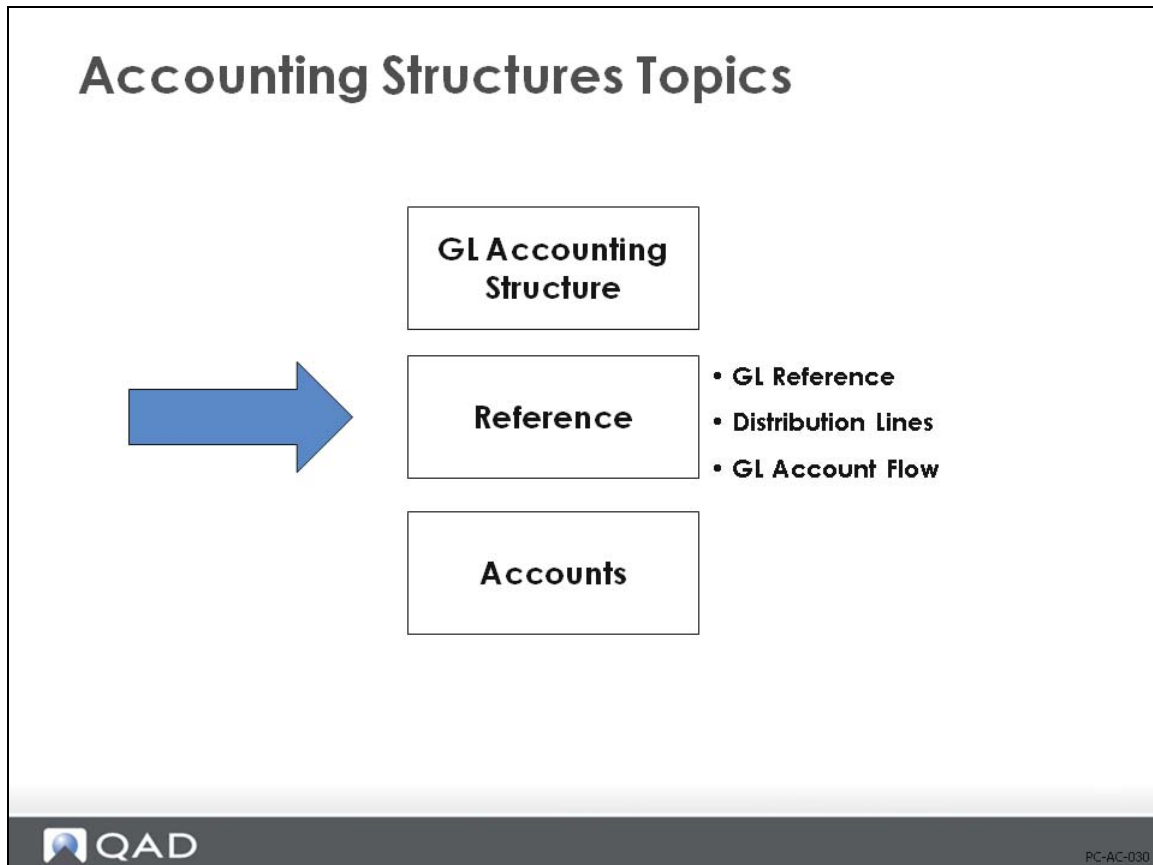
*Accounts Separated by Dashes.* On inquiries and reports, the system separates accounts, sub-accounts, and cost centers by dashes. For example, account 2100, sub-account 10, and cost center 1000 appears as 2100-10-1000. If there were no sub-account, you would only see 2100-1000.

### Study Question

List each of the five elements of the account code structure shown here.

- 1
- 2
- 3
- 4
- 5

## Accounting Structure Topics: Reference



In this section, we will look at how to read the GL Reference and Distribution lines, followed by a discussion of account defaults and where accounts are set up.

## GL Reference

# GL Reference Number

QAD

**Unposted Transaction Register**  
 10USA

09/16/10 12:44:14  
**Page: 1**

Reference ID	Entered Date	User ID	Line	Account	Project	Entity	Description	Amount	Cur	Daybook
IC100802000001	08/02/10 08/02/10	qmi	1	1500-Mech		10USACO	RCT-UNP	390.00	USD	RCT-UNP
			2	6610-Mech-ADM		10USACO	RCT-UNP	-390.00	USD	RCT-UNP
								0.00	USD	
IC100803000001	08/03/10 08/03/10	qmi	1	1500-Mech		10USACO	RCT-UNP	756.39	USD	RCT-UNP
			2	6610-Mech-ADM		10USACO	RCT-UNP	-756.39	USD	RCT-UNP
								0.00	USD	

**GL Reference**  
**IC100803000001**

Transaction  
Type

Effective  
Date

Transaction  
Number

QAD

PC-AC-040

Every transaction is identified by a GL reference code consisting of the GL transaction type, the date that the transaction should update the GL, and the transaction number.

The transaction type indicates the module or activity (for example, IC stands for Inventory Control) that originated the transaction.

## Distribution Lines

The screenshot displays the 'Unposted Transaction Inquiry' window in QAD. The window title is 'Unposted Transaction Inquiry -...' and the date is 09/16/10. The QAD logo is visible in the top left. The main content area shows a table with the following data:

Reference ID	Batch	Cur USD	Unb Only Yes	Output PAGE
IC080101000001		01/01/08	05/10/10	rgk 0.00 No

Line	Account	Project	Entity	Description	Amount	Cur
1	1500-Mech		10USACO	Unplanned receipt Invalid Daybook	13,914.83	USD
2	6610-Mech-ADM		10USACO	Unplanned receipt Invalid Daybook	-13,914.83	USD

A red arrow points from a box labeled 'Distrib. Lines' to the first two rows of the distribution lines table.

The QAD logo and 'PC-AC-050' are visible at the bottom of the window.

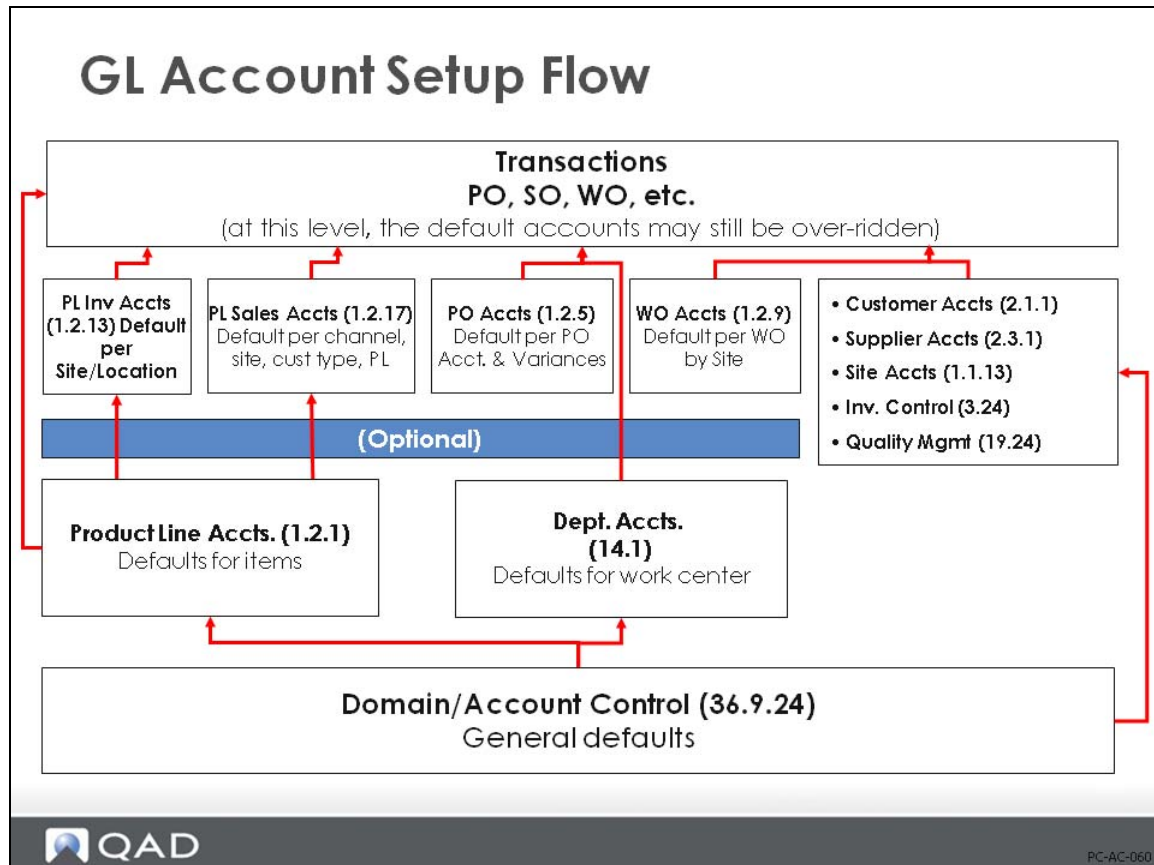
In addition to the information used to identify the transaction, the transaction record consists of one or more distribution lines—debit and credit amounts that you will post to GL accounts at period-end.

In QAD Enterprise Applications all GL distribution lines are created for a specific entity and account combination. The entity indicates which business the transaction affected, and the account indicates which assets, liabilities, income or expenses were changed.

In the example above, account and cost center are shown. Sub-account and project can also be included.

A more complex transaction, a sales order invoice for example, can have many distribution lines. A credit to sales a debit to accounts receivable, a credit to sales discount, a credit to sales commissions, and a credit to tax liability. The distribution lines should balance.

## GL Account Setup Flow



General ledger accounts occur in a variety of places. If set up correctly, you will not have to enter the GL accounts on most transactions; the correct ones are brought in as defaults, speeding up data entry and minimizing errors.

### Domain/Account Control (36.9.24)

System-wide defaults are set up in Domain/Account Control (36.9.24). A few accounts are used directly, but most account defaults flow through the system as shown above.

### Department Accounts (14.1)

Manufacturing costs are grouped by departments. When you create department records, the accounts to be used for transactions associated to this department default from Domain/Account Control, but can be changed to any other valid account in Department Maintenance (14.1).

### Product Line Accounts (1.2.1)

Each item record must be associated to a product line, which is then used to determine the default accounts for transactions of this item. When you create a product line, the account information defaults from Domain/Account Control and then can be modified to any other valid account in Product Line Maintenance (1.2.1). Product line accounts include sales, work order, inventory, and purchasing accounts. For closer tracking of inventory and sales, purchase and work orders

accounts, you can use Inventory Account Maintenance (1.2.13), Sales Account Maintenance (1.2.17), Purchasing Account Maintenance (1.2.5) and Work Order Account Maintenance (1.2.9), which are described below.

### Inventory Account Maintenance (1.2.13)

You can specify inventory accounts in more detail than the product lines allow. If so, then you can set them by Product Line, Site and Location to obtain the level of detail you want. Location is optional and allows you to set inventory accounts differently for multiple sites within a product line.

### Sales Account Maintenance (1.2.17)

In some cases, you can break sales information down into more detail than is available through product lines alone. In that case, if you additionally define sales accounts for a product line by site, customer type, and/or channel, you can use different accounts in sales transactions. In this function, you must specify Product Line and Site, but only need to use Customer Type and Channel if you need more levels of detail.

**Note** The Customer Type is associated to the customer record and the system will look it up during sales account assignment in sales order processing; however, channel must be entered manually on each sales order.

### Purchasing Account Maintenance (1.2.5)

In some reporting, you might need Purchasing account breakdown by Site or Supplier Type. Purchase accounts, receipt accounts, OH applied accounts and AP variances can be set up specific to the breakdown. The supplier type is set up in the system and identified to the Supplier in the Supplier Maintenance.

### Work Order Account Maintenance (1.2.9)

Work Order accounts specific to variances, Floor Stock, WIP and Cost of Production can be set up specific to a site for each Product Line.

### Customer Accounts (2.1.1)

When you create a new customer record in Customer Maintenance (2.1.1), the Accounts Receivable (AR) account will default based on Domain/Account Control (36.9.24). If you assign a site to the customer, that site will default to a sales order header where you can override it. The header site might or might not be used on the order lines, where you can use different sites. The site controls the entity for transactions of sales data and cost of goods sold, so it is important to review this when planning your implementation in a multiple-entity environment.

### Supplier Accounts (2.3.1)

When you create a new supplier record in Supplier Maintenance (2.3.1), the purchase account for expense transactions and the AP account will default from Domain/Account Control (36.9.24). You can change them to any valid account. Note also that you can assign a bank code to each

supplier, and the bank code defines the entity to be used in payables transactions. In a multiple-site, multiple-entity environment, this can raise issues, and so it will be important to evaluate this in your implementation planning.

### **Site Accounts (1.1.13)**

When sites are created in Site Maintenance (1.1.13), the Transfer Variance account will default from Domain/Account Control (36.9.24). If you will be transferring materials between sites, you might want to define different account combinations for each site. If you will be using DRP to transact materials between sites, you can define these accounts by site.

### **Inventory Accounting Control (36.9.2)**

The Transfer Clearing account is used to track transfers within a site or between two sites within the same entity. The Intercompany account is used when transferring between two sites that are in separate entities in a single database. The system will automatically generate the transactions required to balance between the entities. They will be entity specific, though, based on the entity associated to the sites transferring the inventory.

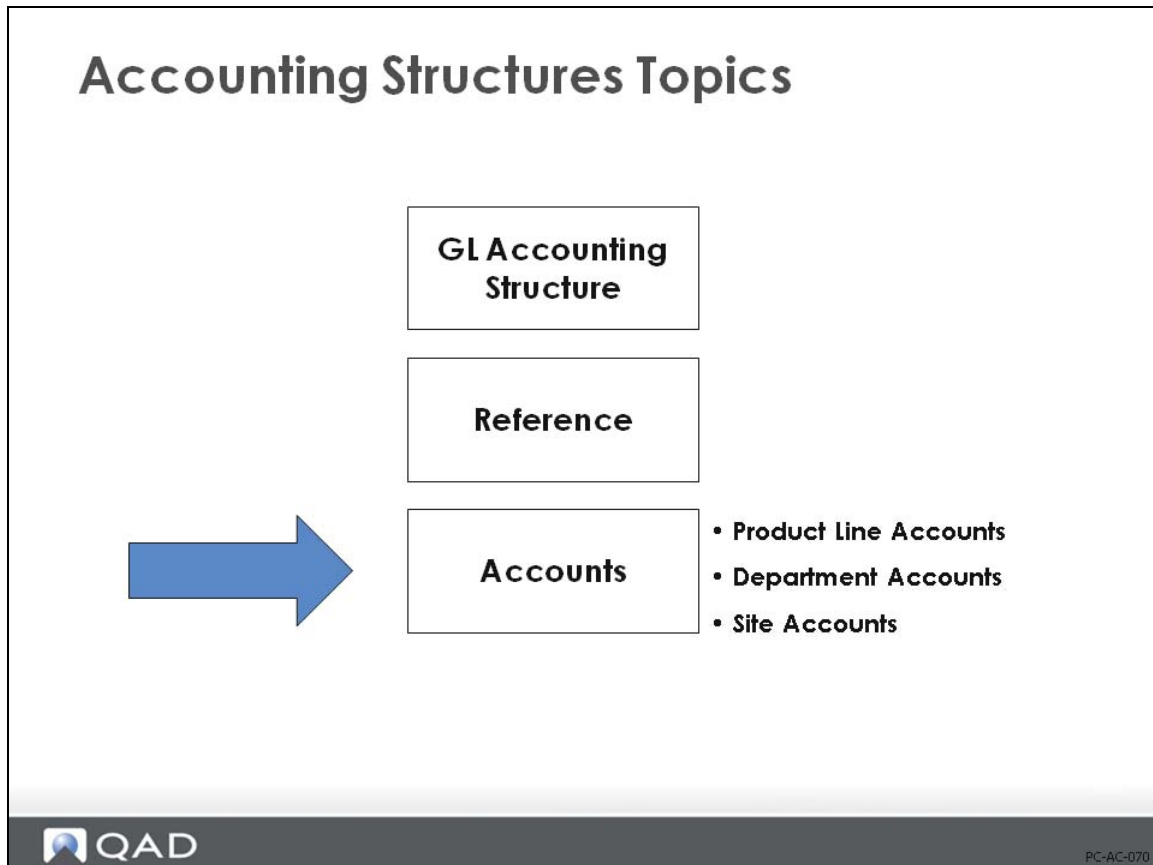
### **Quality Management Control (19.24)**

The inspection site specified in this control program will be used to set the entity for any inventory related transactions. Additionally, the inspection location specified can affect accounts used for inventory transactions.

### **Transaction-Level Defaults**

Most transaction maintenance functions, such as work orders, purchase orders, sales orders, and miscellaneous inventory transactions, allow you to override the default accounts with any other valid account.

## Accounting Structures Topics: Accounts



In this section, we will review each of the QAD Enterprise Applications costing accounts in detail.

**Product Line and Department Accounts: Overview**

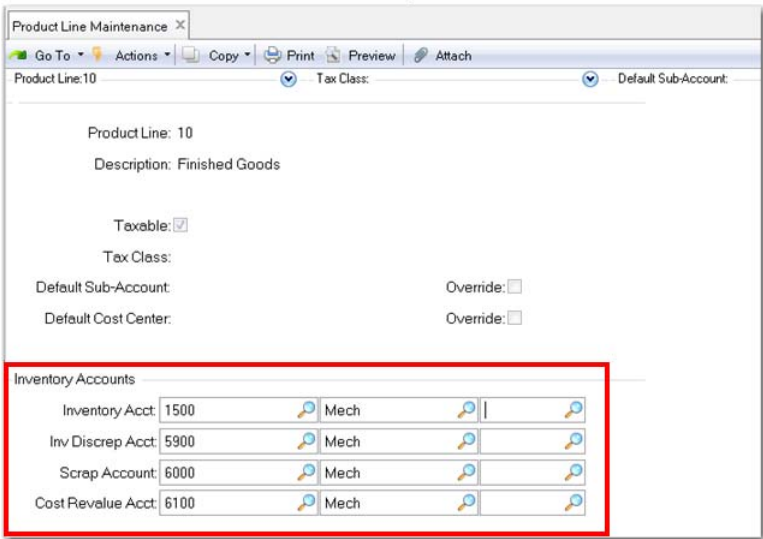
<b>Product Line Accounts</b>				<b>Dept. Accounts</b>
<b>Sales</b>	<b>Work Order</b>	<b>Inventory</b>	<b>Purchasing</b>	<b>Department</b>
Sales	Floor Stock	Inventory	Purchases	Cost of Production
Sales Discount	Material Usage Variance	Inventory Discrepancy	PO Receipts	Labor Absorbed
Exempt Sales	Material Rate Variance	Scrap	Overhead Applied	Burden Absorbed
COGS Material	Mix Variance	WIP	PO Price Variance	Labor Usage Variance
COGS Labor	Cost of Production	Method Variance	AP Usage Variance	Labor Rate Variance
COGS Burden	Subcontract Usage Variance	Cost Revalue	AP Rate Variance	Burden Usage Variance
COGS Overhead	Subcontract Rate Variance			Burden Rate Variance
COGS Subcontract				



PC-AC-060


## Inventory Accounts

### Product Line Inventory Accounts



Inventory Accounts			
Inventory Acct:	1500	Mech	
Inv Discrep Acct:	5900	Mech	
Scrap Account:	6000	Mech	
Cost Revalue Acct:	6100	Mech	

- **Inventory:** To track inventory balances for balance sheet
- **Inventory Discrepancy:** Adjustments from cycle counts and physical counts
- **Scrap:** From work orders and quality orders
- **Cost Revaluation:** Resulting from standard costs changing


PC-AC-090

In a perpetual inventory system such as QAD Enterprise Applications, every inventory receipt, issue, count, or transfer updates the Inventory account (at GL cost). The following are the specific inventory accounts set up in QAD Enterprise Applications, with information on the account type and the QAD Enterprise Applications functions that use the accounts.

**Inventory.** Tracks inventory value. Transactions affecting Inventory accounts include purchase order receipts, work order issues/receipts, sales order shipments, physical inventory counts, as well as manual inventory transactions. Each of these transactions affects inventory by creating a GL transaction which either debits (increases) or credits (decreases) the account value. If site/location inventory accounts are specified in Inventory Account Maintenance (1.2.13), all inventory transactions will use them. Otherwise, the product line inventory account associated to the item will default.

**Inventory Discrepancy.** Tracks inventory discrepancies due to cycle count or physical inventory adjustments. Positive count adjustments debit (increase) the Inventory account and credit (decrease) the Inventory Discrepancy account. Negative count adjustments do the reverse.

*Inventory Discrepancy = Quantity change \* total GL cost*

**Scrap.** Records scrap amounts from work orders or quality orders.

**Cost Revalue.** Records the GL impact of item cost changes on inventory. Whenever the GL costs for items are changed using either Item Cost Maintenance, Item-Site Cost Maintenance, Cost Roll-Ups in the GL cost set, or Current Cost Set Move to GL Set, the system

automatically creates revaluation postings in the GL. An increase in cost will cause a debit to the Inventory account and a credit to the Cost Revalue account. Note that GL item cost changes do not automatically revalue material in WIP. This material can be revalued by using WIP Material Cost Revaluation (16.22).

*Cost Revalue = Cost change \* total quantity on-hand*

## Inventory Account Maintenance

# Inventory Account Maintenance

Product Line: 10      Finished Goods  
 Site: 10-100      Ultrasound Mfg Site  
 Location:

Default Sub-Account:  Override:  
 Default Cost Center:  Override:

Inventory Acct:	1500	Mech
Scrap Account:	6000	Mech
Inv Discrep Acct:	5900	Mech
Cost Revalue Acct:	6100	Mech

Location Independent

Transfer Variance Acct:	6820	MECH
-------------------------	------	------

Consignment Accounts

SO Consigned In-Transit Acct:	1650	Mech
SO Consigned Inventory Acct:	1655	Mech
SO Consigned Offset Acct:	2455	Mech

QAD PC-AC-100

Usually inventory balances are maintained by product line, but you can specify inventory accounts in more detail than Product Line Maintenance (1.2.1), allows. If so, you can set inventory accounts by product line, site, and location in Inventory Account Maintenance (1.2.13), to obtain the level of detail that you want. Location is optional and allows you to set inventory accounts differently for multiple sites within a product line.

## Product Line Purchasing Accounts

### Product Line Purchasing Accounts

Purchasing Accounts		
Purchases Acct:	6610	Mech
PO Receipts Acct:	2520	Mech
Overhead Appl Acct:	5330	Mech
PO Price Var Acct:	6710	Mech
AP Usage Var Acct:	6720	Mech
AP Rate Var Acct:	6740	Mech

- **Purchases Non-Inventory**
- **PO Receipts Accrual** (inventory items)
- **Overhead Applied Fixed** OH applied at PO Receipts and WO Receipt
- **PO Price Variance** PO price vs std price at PO Receipt
- **AP Usage Variance** PO quantity vs invoice quantity at vouchering
- **AP Rate Variance** PO rate vs invoice rate at vouchering

PC-AC-110

Another group of accounts is used to monitor Purchasing and Accounts Payable activities. These purchasing accounts include variance accounts, which are used to evaluate your internal performance and that of your suppliers.

**Purchases.** Records purchases of non-inventory (expense) items that exist in the Item Master. Default account usually amended.

**PO Receipts (accrued AP) for Inventory Items.** Accrues purchase order receipts prior to receipt of supplier invoices. The Inventory account is debited for the GL cost of the item less any overhead amount multiplied by the quantity received. The Purchase Order Receipts account is credited for the purchase order price times the quantity received.

*PO unit price \* PO qty received*

**Overhead Applied.** Tracks fixed overhead amounts applied at purchase and manufacturing item receipts. When receipt transactions are made, the system credits the Overhead Applied account and debits Inventory for this-level overhead amount.

**PO Price Variance.** Tracks the difference between the PO price for an item and the total standard cost of the item at the time the PO is received (less any overhead amount).

*[PO unit price – (total GL unit cost – overhead)] \* PO qty received*

When a purchase order item is received, the system creates a debit to Purchase Price Variance in addition to a debit to Inventory in the event the PO price is higher. It does so in order to balance the credit to Purchase Order Receipts.

*AP Usage Variance* . Tracks the difference between PO quantity received and supplier invoice quantity when receipts are vouchered.

*(Invoice qty – PO receipt qty) \* PO unit cost*

A positive variance (invoice quantity larger than received quantity multiplied by the PO unit price) is debited to the Accounts Payable Usage Variance account and credited to the PO Receipts account, which now contains both the original receipt value plus the value of the discrepancy between the original receipt quantity and the quantity that was vouchered.

*AP Rate Variance* . Tracks the difference between PO price and supplier invoice price when receipts are vouchered.

*(Invoice unit cost- PO unit cost) \* invoice qty*

In the case of a higher price, the Accounts Payable Rate Variance account is debited and the PO Receipts account is credited. The PO Receipts account contains the original receipt value plus the AP Usage Variance and the value of the discrepancy between the original PO cost and the cost that was vouchered.

## Sales Accounts

### Product Line Sales Accounts

The screenshot shows the 'Product Line Maintenance' window for Product Line 10. The 'Sales Accounts' section contains the following table:

Sales Account:	4010	mech	ADM
Sales Disc Acct:	4200	Mech	
COGS Material Acct:	5010	Mech	ADM
COGS Labor Acct:	5100	Mech	
COGS Burden Acct:	5200	Mech	
COGS Overhead Acct:	5300	Mech	
COGS Subcontract Acct:	5400	Mech	

The legend on the right side of the window defines the categories:

- Sales**
  - Gross
- Sales Disc**
  - Line Item
- COGS**
  - Material
  - Labor
  - Burden
  - Overhead
  - Subcontract

Sales and cost of sales amounts are tracked by product line. The GL accounts for Sales and Sales Discounts default from the sales accounts if defined in Sales Account Maintenance (1.2.17); otherwise, from the item product line (Product Line Maintenance (1.2.1)).

**Sales.** Tracks gross revenue from sales

**Sales Disc.** Tracks sales order line discount amounts

**Note** Price List Maintenance (1.10.1.1), Discount Account field: If a discount account, cost center, or project is specified in Price List Maintenance, then any discounts arising from the selected price list are posted to that account, cost center, or project. If no account, cost center, or project is specified, the discount amounts are posted to the Discount account specified in Sales Account Maintenance (1.2.17), or Product Line Maintenance (1.2.1). If you want to segregate discount postings based on sales order information, such as product line or sales channel, then you should leave the Disc Acct and Accrual fields blank in Price List Maintenance.

The item's GL cost is used to post Cost of Goods Sold (COGS). This amount is split into the five major cost categories of material, labor, burden, overhead, and subcontract.

**COGS Material.** Tracks the material portion of cost of sales. Each time a shipment occurs, a credit is made to the Inventory account for the total GL cost of the item times the quantity shipped and a debit for the COGS material portion.

*COGS Labor* . Tracks the labor portion of cost of sales. Each time a shipment occurs, a credit is made to the Inventory account for the total GL cost of the item times the quantity shipped and a debit for the COGS labor portion.

*COGS Burden* . Tracks the variable overhead portion of cost of sales. Each time a shipment occurs, a credit is made to the Inventory account for the total GL cost of the item times the quantity shipped and a debit for the COGS burden portion.

*COGS Overhead* . Tracks the fixed overhead portion of cost of sales. Each time a shipment occurs, a credit is made to the Inventory account for the total GL cost of the item times the quantity shipped and a debit for the COGS overhead portion.

*COGS Subcontract* . Tracks the subcontract portion of cost of sales. Each time a shipment occurs, a credit is made to the Inventory account for the total GL cost of the item times the quantity shipped and a debit for the COGS subcontract portion.

**Note** If you do not want to track the COGS costs by cost category, then you can set the accounts to be the same for all five categories.

## Sales Account Maintenance

# Sales Account Maintenance

Product Line: 10      Finished Goods  
 Site: 10-100      Ultrasound Mfg Site  
 Customer Type:  
 Channel:

Default Sub-Account:      Override:   
 Default Cost Center:      Override:

Sales Account:	4010	mech	ADM
Sales Disc Acct:	4200	Mech	
COGS Material Acct:	5010	Mech	ADM
COGS Burden Acct:	5200	Mech	
COGS Labor Acct:	5100	Mech	
COGS Overhead Acct:	5300	Mech	
COGS Subcontract Acct:	5400	Mech	
Deferred Revenue:	2450	Mech	
Accrued Revenue:	1450	Mech	
Expense Due Account:	6915	Mech	

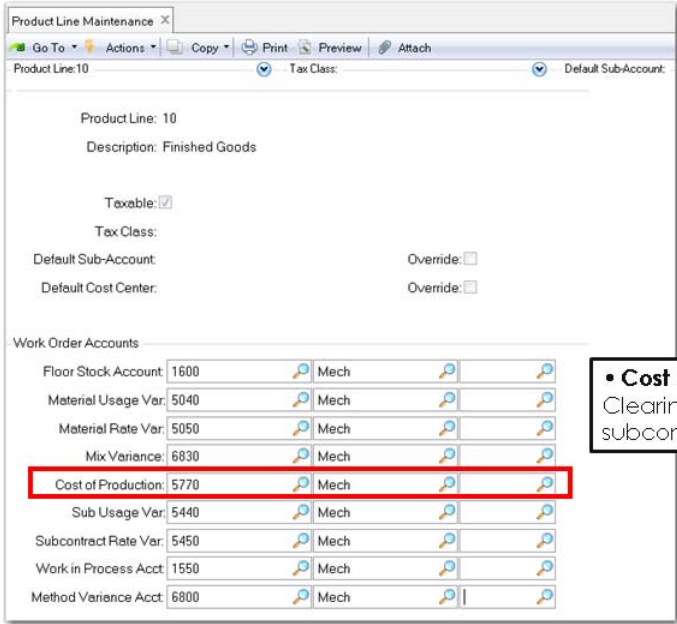
**QAD** PC-AC-130

In some cases, you can break sales information down into more detail than is available through product lines. In that case, if you additionally define sales accounts for a product line by site, customer type (hospitals, doctors' offices) and/or channel (direct, OEM) in Sales Account Maintenance (1.2.17), you can use different accounts in sales transactions. In this function, you must specify product line and site, but only need to use customer type and channel if you want more levels of detail.

**Note** The Customer Type is associated with the customer record, and the system will look it up during sales account assignment in sales order processing. But Channel must be entered manually on each sales order. A blank Channel code is valid if accounts are assigned strictly by Customer Type.

## Product Line Work Order Accounts

### Product Line Work Order Accounts



Work Order Accounts			
Floor Stock Account:	1600	Mech	
Material Usage Var:	5040	Mech	
Material Rate Var:	5050	Mech	
Mix Variance:	6830	Mech	
<b>Cost of Production:</b>	<b>5770</b>	<b>Mech</b>	
Sub Usage Var:	5440	Mech	
Subcontract Rate Var:	5450	Mech	
Work in Process Acct:	1550	Mech	
Method Variance Acct:	6800	Mech	

• Cost of Production  
Clearing acct for subcontract costs

These product line accounts are used in manufacturing to track the cost of floor stock, miscellaneous production costs, and work order variances. They appear on each manufacturing order as the defaults, but can be changed on any order.

**Floor Stock.** This is an Inventory clearing account for bulk issue items (for example, nails or nuts and bolts) that are part of the product structure, but which are not issued in the normal manner. Such items, coded in Item Master Maintenance (1.4.1) (or Item Planning Maintenance (1.4.7) or Item Site Planning Maintenance(1.4.17)), with an Issue Policy = No, are issued to the floor using an unplanned issue transaction (Issues, Unplanned, (3.7)). The system uses the Floor Stock account rather than the Cost of Production account, though, so that the material is not expensed. The issue transaction creates a debit to Floor Stock and a credit to Inventory.

**Material Usage Variance.** Tracks the difference between actual quantity issued and the standard quantity required in work orders. Since the standard cost of the item is inflated for yield losses, differences due to yield are reflected here. This variance is calculated and posted when the manufacturing order is accounting closed. Usage variance will also be calculated for substitute materials issued to work orders, work order bill modifications that add materials, phantom use-up logic under some conditions, component issues to rework jobs, and for any materials issued to an expense job that is accounting closed.

$\{actual\ qty\ issued - [qty\ per * (qty\ complete + qty\ reject)]\} * GL\ cost$

**Material Rate Variance.** Tracks the difference between the GL cost of an item at the time it is issued to a work order and the frozen cost of the item in the work order bill. You get this difference when you issue material from a different site and it has a different cost or when you change GL costs without updating WIP.

*(WO BOM unit cost at issue – GL unit cost) \* actual qty issued*

**Mix Variance.** This is the GL account code normally used to track the mix variance. The product line Mix Variance account is used as a default on all manufacturing orders for Co-Products/By-Products in the product line.

*[order qty – (receipt qty + scrap qty)] \* GL cost*

**Cost of Production.** Miscellaneous production costs that cannot be tracked to a specific work order, such as unplanned issues. Also serves as the clearing account for subcontract purchase transactions on work orders. When a subcontract purchase order is received, the cost of the subcontract item will remain in the Cost of Production account if no work order was linked to the subcontract purchase order.

**Subcontract Usage Variance.** Tracks the difference between the quantity received on a subcontract PO and the quantity completed in work in process.

This variance can be due to yield differences and rework, for example. It is calculated and posted by Work Order Accounting Close (16.21). A positive quantity multiplied by the subcontract operation cost is debited to Subcontract Usage and credited to WIP.

*Subcontract Usage Var =*

*[qty received – (qty complete + qty reject)] \* subcontract frozen WO BOM unit cost*

**Subcontract Rate Variance.** Tracks the difference between the subcontract PO price and the standard subcontract cost in the routing for an item. This is calculated and posted at the time the PO Receipt is processed. A positive rate difference multiplied by the quantity received at purchase order receipt is credited to WIP and debited to the Subcontract Rate Variance account.

*Subcontract Rate Variance = (subcontract PO unit cost – subcontract frozen WO BOM unit cost) \* qty received*

**Work in Process (WIP).** Tracks work-in-process inventory value.

**Method Variance.** Tracks any unexplained manufacturing variances at work order or cumulative order accounting close. Method variance might be due to alternate routings, alternate product structures, timing of changes to item cost standards, lot size variance, or a rounding remainder.

## Purchasing Accounts Maintenance

## Purchasing Accounts Maintenance

Purchasing Account Maintenanc... x

Go To Actions Copy Print Preview Attach

Product Line: 10
Site: 10-100
Default Sub-Account:

Product Line: 10

Finished Goods

Site: 10-100

Ultrasound Mfg Site

Supplier Type:

Default Sub-Account:

Override:

Default Cost Center:

Override:

Purchases Acct: 6610	Mech	ADM
PO Receipts Acct: 2520	Mech	
Overhead Appl Acct: 5330	Mech	
PO Price Var Acct: 6710	Mech	ADM
AP Usage Var Acct: 6720	Mech	
AP Rate Var Acct: 6740	Mech	

PC-AC-150

Purchase accounts can be defined by site and supplier type.

## Work Order Account Maintenance

### Work Order Account Maintenance

Work Order Account Maintena... X

Go To Actions Copy Print Preview Attach

Product Line: 10 Site: 10-100 Default Sub-Account:

Product Line: 10 Finished Goods  
Site: 10-100 Ultrasound Mfg Site

Default Sub-Account:  Override:   
Default Cost Center:  Override:

Floor Stock: 1600	Mech
Material Usage Var: 5040	Mech
Material Rate Var: 5050	Mech
Mix Variance: 6830	Mech
Cost of Production: 5770	Mech
Subcontract Usage Var: 5440	Mech
Subcontract Rate Var: 5450	Mech
Work in Process: 1550	Mech
Method Variance Acct: 6800	Mech

QAD PC-AC-160

Work order accounts can be defined by site.

Product Line Service Accounts

# Product Line Service Accounts

The screenshot shows the 'Product Line Maintenance' window for Product Line 10. The window title is 'Product Line Maintenance'. The menu bar includes 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. The main content area displays the following information:

- Product Line: 10
- Description: Finished Goods
- Taxable:
- Tax Class: [Dropdown]
- Default Sub-Account: [Dropdown] Override:
- Default Cost Center: [Dropdown] Override:

Below this information is a table of Service Accounts:

Service Accounts			
Service Labor:	6900	Mech	
Service Overhead:	6905	Mech	
Service Expense:	6910	Mech	
Expense Due:	6915	Mech	
Service Returns:	6920	Mech	
Deferred Revenue:	2450	Mech	
Accrued Revenue:	1450	Mech	

Not directly related to product costing but uses cost data to track service items and returns

## Product Line Consignment Accounts

# Product Line Consignment Accounts


The screenshot shows the 'Product Line Maintenance' window for Product Line 10. The window includes a menu bar with 'Go To', 'Actions', 'Copy', 'Print', 'Preview', and 'Attach'. Below the menu, there are fields for 'Product Line: 10', 'Tax Class', and 'Default Sub-Account'. The main content area displays the following information:

- Product Line: 10
- Description: Finished Goods
- Taxable:
- Tax Class:
- Default Sub-Account:  Override:
- Default Cost Center:  Override:

Below this information is a table of 'Consignment Accounts':

Account Name	Account Number	Account Type	Override
SO Consigned In-Transit Acct.	1650	Mech	<input type="checkbox"/>
SO Consigned Inventory Acct.	1655	Mech	<input type="checkbox"/>
SO Consigned Offset Acct.	2455	Mech	<input type="checkbox"/>
PO Consigned Inventory Acct.	1660	Mech	<input type="checkbox"/>
PO Consigned Offset Acct.	2460	Mech	<input type="checkbox"/>

A callout box on the right side of the screenshot contains the following text: "Not directly related to product costing but uses cost data to track value of inventory held at a customer location or supplier inventory held at our location".

 PC-AC-180

## Product Line Accounts: Summary

Product Line Accounts: Summary (1 of 2)		
Account	Type	Use
Inventory	Asset	Inventory Transactions
Inv Discrep	Expense	Inventory Counts
Scrap	Expense	WO Receipt
Work in Process	Asset	Work Orders, Backflush, Rep
Method Variance	Expense	WO Acctg Close, Cum Order
Cost Revalue	Expense	Close
Sales	Income	GL Cost Change
Sales Disc	Expense	Invoice Post
(Tax) Exempt Sales	Income	Invoice Post
COGS Material	Expense	Invoice Post (Canadian)
COGS Labor	Expense	SO Shipment
COGS Burden	Expense	SO Shipment
COGS Overhead	Expense	SO Shipment
COGS Subcontract	Expense	SO Shipment

The figure above and on the following page is a summary of the product line accounts, the account type, and the kinds of transactions the accounts might appear on.

## Product Line Accounts: Summary (2 of 2)

Account	Type	Use
Purchases	Expense	PO Receipt (Non-Inventory)
PO Receipts (Accrued AP)	Liability	PO Receipt, Voucher
Overhead Applied	Expense	PO Receipt, WO Receipt
PO Price Variance	Expense	PO Receipt
AP Usage Variance	Expense	Voucher
AP Rate Variance	Expense	Voucher
Floor Stock	Asset	WO Close, Cum Order Acctg
Material Usage Variance	Expense	Close
Material Rate Variance	Expense	WO Close, Cum Order Acctg
	Expense	Close
Cost of Production	Expense	WO Issue, WO Close, Repetitive
Subcontract Usage Var	Expense	Backflush, Rework
Subcontract Rate Var	Expense	Unplanned Issues
		WO Close, Cum Order Acctg
		Close
		WO Close, PO Receipt



PC-AC-200

### Study Questions

List the three elements of the GL Reference Number.

Product Lines define the default account codes for which of the following?

- a Inventory Accounts
- b Purchasing Accounts
- c Sales Accounts
- d Work Order Accounts
- e None of the above
- f All of the above

The debits and credits on a multiple line GL distribution must balance. True or False?

In planning for next year QMI wants to add an allowance for fixed overhead to each finished good item. The production plan calls for 3500 units of production. The annual rent on the production facility is 120,000; the umbrella insurance policy is 25,000; the general maintenance budget is 200,000; management salaries are 300,000. What value should be put in the Overhead Cost field of the GL cost set for each finished good item?

## Department Accounts

### Department Maintenance

Account Name	Value	Department 1	Department 2
Cost of Production	5770	Mech	
Labor	5120	Mech	mfg
Burden	5220	Mech	mfg
Labor Usage Variance Acct	5140	Mech	mfg
Labor Rate Variance Acct	5150	Mech	mfg
Burden Usage Variance	5240	Mech	mfg
Burden Rate Variance	5250	Mech	mfg

- **COP** Misc production expense (downtime, breaks)
- **Labor** Absorption
- **Burden** Absorption
- **Labor & Burden Usage Variance** Quantity variance; posted at SFC or WO Receipt; default set in WO Control File
- **Labor & Burden Rate Variance** Price/rate variance; posted at SFC or WO Receipt; default set in WO Control File

Manufacturing costs are grouped by department. When you create department records, the accounts to be used for transactions associated to this department default from Domain/Account Control, and can be changed to any other valid account.

The department account codes are similar to the GL account codes for product lines. They are used when reporting labor and downtime in the Shop Floor Control and Advanced Repetitive/Repetitive modules, and when backflushing inventory and closing the accounting for completed work orders. More detailed information about these accounts follows.

**Cost of Production.** Used for indirect labor using non-productive labor reporting, or for downtime reporting.

**Labor (absorption).** Used to accumulate the labor cost for a department. The standard hours at the standard rate are debited to WIP and credited to the Labor and Burden accounts. Labor usage and burden usage variances are calculated and credited to the Labor and Burden accounts, respectively. And labor rate variances are calculated and credited to the Labor and Burden accounts.

**Burden (absorption).** Burden is the variable overhead associated with production operations, and the burden account is used to accumulate accrued burden for a department. It is used in conjunction with labor reporting and the backflushing of standard labor. Both direct and downtime hours (if employee and work center are specified in Downtime Transaction) will be burdened, while non-productive hours reported will not be.

**Labor Usage Variance.** For standard cost, labor usage variance is used to track the difference between the actual time reported and the standard time set for both setup and run labor. Since standard hours are inflated to cover yield losses, differences due to yield will be reflected in labor usage variance.

$$\begin{aligned} \text{Labor Usage Variance} = & \\ & [(actual\ setup\ hrs - std\ setup\ hrs) * std\ setup\ rate] + [actual\ run\ hrs - std\ run\ hrs] * std\ run\ rate] \\ & Std\ run\ hrs = std\ run\ hrs/unit * (qty\ completed + qty\ rejected) \end{aligned}$$

**Labor Rate Variance.** Tracks the difference between the actual employee pay rate (including overtime and shift differential) and the work center standard labor rate.

$$\begin{aligned} \text{Labor Rate Variance} = & \\ & [(actual\ setup\ rate - std\ setup\ rate) * actual\ setup\ hrs] + [(actual\ run\ rate - std\ run\ rate) * actual\ run\ hrs] \end{aligned}$$

**Burden Usage Variance.** Tracks the difference in burden costs due to the actual hours reported varying from the standard hours required on the routing.

$$\begin{aligned} \text{Burden Usage Variance} = & \\ & [(actual\ setup\ hrs - std\ setup\ hrs) * std\ setup\ burden] + [(actual\ run\ hrs - std\ run\ hrs) * std\ run\ burden] \end{aligned}$$

Where:

$$Std\ setup\ burden = (std\ setup\ rate * bdn\%) + lbr\ bdn\ rate + (mach\ bdn\ rate * mach/op)$$

$$Std\ run\ burden = (std\ run\ rate * bdn\%) + lbr\ bdn\ rate + mach\ bdn\ rate$$

Burden can be a percentage of labor, a fixed rate per labor hour for machine, or the sum of these.

**Burden Rate Variance.** Tracks the difference in burden costs due to the employee's actual pay rate varying from the work center standard labor rate. This applies only if burden is calculated as a percentage of labor cost and the employee's pay rate is different than the work center standard.

$$\begin{aligned} \text{Burden Rate Variance} = & \\ & [(actual\ setup\ bdn - std\ setup\ bdn) * actual\ setup\ hrs] + [(actual\ run\ bdn - std\ run\ bdn) * actual\ run\ hrs] \end{aligned}$$

Where

$$Actual\ setup\ burden = (actual\ setup\ rate * bdn\%) + lbr\ bdn\ rate + (mach\ bdn\ rate * mach/op)$$

$$Std\ setup\ burden = (std\ setup\ rate * bdn\%) + lbr\ bdn\ rate + (mach\ bdn\ rate * mach/op)$$

$$Actual\ run\ burden = (actual\ run\ rate * bdn\%) + lbr\ bdn\ rate + mach\ bdn\ rate$$

$$Std\ run\ burden = (std\ run\ rate * bdn\%) + lbr\ bdn\ rate + mach\ bdn\ rate$$

## Summary of Department Accounts

Department Accounts: Summary		
Account	Type	Use
Cost of Production Labor (Absorbed)	Expense	Non-Prod Labor, SFC Transfer, Downtime
Burden (Absorbed)	Expense	SFC, Repetitive Backflush/Rework, WO Acctg Close
Labor Usage Variance	Expense	SFC, Repetitive Backflush/Rework, WO Acctg Close
Labor Rate Variance	Expense	SFC, WO Receipt, Cum Order Acctg Close
Burden Usage Variance	Expense	SFC, WO Receipt, Repetitive Backflush/Rework
Burden Rate Variance	Expense	SFC, WO Receipt, Cum Order Acctg Close
		SFC, WO Receipt, Repetitive Backflush/Rework

The figure above is a summary of the accounts for a department, the account type, and the kinds of transactions on which the accounts might appear.

## Site Accounts

### Site Maintenance

Site: 10-100

Description: Ultrasound Mfg Site

Domain: 10USA

Entity: 10USACO

Declarant:

Default Inventory Status: Y-Y-N

Automatic Locations:

Inspection Location: 030

EMT Supplier: 10-300

External Supplier:

Transfer Variance Acct: 6820 MECH

Transfer Ownership:

PO Transit Location:

Used to book cost variance when a transfer between sites results in a cost difference

QAD PC-AC-230

For each site in the database, you can establish a Transfer Variance account. At the time you create the site, the accounts will default from Domain/Account Control (36.9.24), but you can modify them.

## Quality Management Control

### Quality Management Control

Quality Management Control

Go To Actions Copy Print Preview

Auto Order Numbers:

Next Order Number: 1001 Next Batch: 101

Quality Order Comments:

Inspection Site: 10-100

Inspection Location: 039

Procedure Comments:



PC-AC-240

You can specify sites in Quality Management Control (19.24), for inspection activities related to quality orders and testing. These sites will be used to set the entity for any inventory related transactions. Additionally, you can specify a location that would affect accounts used for inventory transactions if you had inventory accounts specified by location.



Appendix A

# **Study Question Answers**

## Study Question Answers

What are the two primary uses of a standard cost?

- 1 Inventory valuation
- 2 Calculation of Cost of Goods Sold (COGS)

If you take an item out of finished goods inventory, issue it to WIP, disassemble it, and put the components back into inventory, what are the cost impacts?

- 1 The value of the items in inventory decreases
- 2 Any burden absorbed or overhead applied will be lost
- 3 Labor will be expended for no gain, everything is unfavorable

What are the three cost methods supported by QAD?

- 1 Standard
- 2 Average
- 3 Period

What is a major difference between standard and average costing?

- a No variance reporting with average costing.

What are the five cost categories in QAD applications?

- 1 Material
- 2 Labor
- 3 Burden
- 4 Overhead
- 5 Subcontract

What are the two default cost set names in QAD applications?

- 1 GL cost set
- 2 Current cost set

What is the point of the two cost sets in a standard cost system?

- a The standard remains fixed during the plan year while the current is updated with purchase and work order transactions to reflect current costs for labor and material. The differences are reported as variances.

If you want to retain a cost set reflecting the prior years ending cost what module would you use?

- a The Cost Management Module to set up an additional cost set.

What are some examples of an indirect fixed cost?

- 1 Rent
- 2 Insurance
- 3 The shop supervisor's salary

Is the maintenance cost of a machine that must be serviced every 5,000 parts, burden or overhead? Fixed or variable?

- a It is variable burden

List each of the five elements of the account code structure shown here.

- 1 Entity Code
- 2 Account Code
- 3 Sub-account Code
- 4 Cost Center Code
- 5 Project Code

List the three elements of the GL Reference Number.

- 1 Transaction Type
- 2 Effective date
- 3 Sequential transaction number

Product Lines define the default account codes for which of the following?

- Inventory accounts
- Purchasing accounts
- Sales accounts
- Work Order accounts
- None of the above

- All of the above
  - a All of the above

The debits and credits on a multiple line GL distribution must balance. True or False?

- a True

In planning for next year QMI wants to add an allowance for fixed overhead to each finished good item. The production plan calls for 3500 units of production. The annual rent on the production facility is 120,000; the umbrella insurance policy is 25,000; the general maintenance budget is 200,000, management salaries are 300,00. What value should be put in the Overhead cost field of the GL cost set for each finished good item?

- 1 Total overhead is  $120,000+25,000+200,000+300,000=645,000$
- 2  $645,000 / 3500$  units of product = 184.29 overhead per unit.

Appendix B

# **Variances and Components Reference**

## Purchase-Related Variances

Variance	Calculation Method
<p><b>Purchase Price</b></p> <p>Calculated at:</p> <p>PO Receipts (5.13.1)</p> <p>Reports:</p> <p>Transaction Receipts Report (5.9.14)</p> <p>Transactions Detail Inquiry (3.21.1)</p>	$[\text{PO Unit Cost} - (\text{GL Unit Cost} - \text{OH})] * \text{PO Qty Received}$
<p><b>AP Rate</b></p> <p>Calculated at:</p> <p>Supplier Invoice Create (28.1.1.1)</p> <p>Reports:</p> <p>Matching Variance Report (28.2.7)</p> <p>Transactions Detail Inquiry (3.21.1)</p>	$(\text{Invoice Unit Cost} - \text{PO Unit Cost}) * \text{Invoice Qty}$
<p><b>AP Usage</b></p> <p>Calculated at:</p> <p>Supplier Invoice Create (28.1.1.1)</p> <p>Reports:</p> <p>Matching Variance Report (28.2.7)</p> <p>Transactions Detail Inquiry (3.21.1)</p>	$(\text{Invoice Qty} - \text{PO Receipt Qty}) * \text{PO Unit Cost}$

## Manufacturing-Related Variances

Variance	Calculation Method
<p><b>Material Rate</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>WO Component Issue (16.10)</li> <li>WO Receipt Backflush (16.12)</li> <li>Repetitive Backflush (18.22.13)</li> </ul> <p>Reports:</p> <ul style="list-style-type: none"> <li>Work Order Cost Report (16.3.4)</li> <li>Transactions Detail Inquiry (3.21.1)</li> </ul>	$\text{(WO BOM Unit Cost at Issue - GL Unit Cost) * Actual Qty Issued}$
<p><b>Material Usage</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>WO Accounting Close (16.21)</li> <li>Cumulative Order Close (18.22.10)</li> <li>Post Accumulated Usage Variances (18.22.9)</li> </ul> <p>Reports:</p> <ul style="list-style-type: none"> <li>Work Order Cost Report (16.3.4)</li> <li>Transactions Detail Inquiry (3.21.1)</li> <li>Rep Operations Accounting Report (18.22.4.9)</li> </ul>	$\{ \text{Actual Qty Issued} - [\text{qty per} * (\text{qty completed} + \text{qty rejected})] \} * \text{GL Unit Cost}$
<p><b>Labor Rate</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>SFC Feedback (16.20.1), (16.20.2), (16.20.3)</li> </ul> <p>Can be deferred until:</p> <ul style="list-style-type: none"> <li>WO Receipt (16.11), (16.12)</li> <li>Repetitive Backflush (18.22.13)</li> </ul> <p>Reports:</p> <ul style="list-style-type: none"> <li>Work Order Cost Report (16.3.4)</li> <li>Operations Accounting Report (16.20.13.10)</li> <li>Rep Operations Accounting Report (18.22.4.9)</li> </ul>	<p>Per Operation:</p> $[(\text{Actual Setup Rate} - \text{Std Setup Rate}) * \text{Actual Setup Hrs}] + [(\text{Actual Run Rate} - \text{Std Run Rate}) * \text{Actual Run Hrs}]$ <p>Setup and run rates are equal to the payroll rate (defined in 14.13.21) or the work center rate if payroll is not set up.</p> <p>No variances if no labor reporting</p>
<p><b>Labor Usage</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>SFC Feedback (16.20.1), (16.20.2), (16.20.3)</li> </ul> <p>Can be deferred until:</p> <ul style="list-style-type: none"> <li>WO Receipt (16.11), (16.12)</li> <li>Post Accumulated Usage Variances (18.22.9)</li> <li>Cumulative Accounting Close (18.22.10)</li> </ul> <p>Reports:</p> <ul style="list-style-type: none"> <li>WO Cost Report (16.3.4)</li> <li>Operations Accounting Report (16.20.13.10)</li> <li>Rep Operations Accounting Report (18.22.4.9)</li> </ul>	<p>Per Operation:</p> $[(\text{Actual Setup Hrs} - \text{Std Setup Hrs}) * \text{Std Setup Rate}] + [(\text{Actual Run Hrs} - \text{Std Run Hrs}) * \text{Std Run Rate}]$ <p>Std Run Hrs =  <math display="block">\text{Std Run Hrs} * (\text{Qty Completed} + \text{Qty Rejected})</math></p>

Variance	Calculation Method
<p><b>Burden Rate</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>SFC Feedback (16.20.1), (16.20.2), (16.20.3)</li> <li>WO Receipt (16.11), (16.12)</li> <li>Repetitive Backflush (18.22.13)</li> </ul> <p>Reports:</p> <ul style="list-style-type: none"> <li>WO Cost Report (16.3.4)</li> <li>Operations Accounting Report (16.20.13.10)</li> <li>Rep Operations Accounting Report (18.22.4.9)</li> </ul>	<p>Per Operation:</p> $[(\text{Actual Setup Bdn} - \text{Std Setup Bdn}) * \text{Actual Setup Hrs}] + [(\text{Actual Run Bdn} - \text{Std Run Bdn}) * \text{Actual Run Hrs}]$ $\text{Actual Setup Bdn} = (\text{Actual Setup Rate} * \text{Lbr Bdn}\%) + \text{Lbr Bdn Rate} + (\text{Mach Bdn Rate} * \text{Mach/Op})$ $\text{Std Setup Bdn} = (\text{Std Setup Rate} * \text{Lbr Bdn}\%) + \text{Lbr Bdn Rate} + (\text{Mach Bdn Rate} * \text{Mach/Op})$ $\text{Actual Run Bdn} = (\text{Actual Run Rate} * \text{Lbr Bdn}\%) + \text{Lbr Bdn Rate} + \text{Mach Bdn Rate}$ $\text{Std Run Bdn} = (\text{Std Run Rate} * \text{Lbr Bdn}\%) + \text{Lbr Bdn Rate} + \text{Mach Bdn Rate}$
<p><b>Burden Usage</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>SFC Feedback (16.20.1), (16.20.2), (16.20.3)</li> </ul> <p>Can be deferred until:</p> <ul style="list-style-type: none"> <li>WO Receipt (16.11), (16.12)</li> <li>Post Accumulated Usage Variance (18.22.9)</li> <li>Cumulative Order Close (18.22.10)</li> </ul> <p>Reports:</p> <ul style="list-style-type: none"> <li>WO Cost Report (16.3.4)</li> <li>Operations Accounting Report (16.20.13.10)</li> <li>Rep Operations Accounting Report (18.22.4.9)</li> </ul>	<p>Per Operation:</p> $[(\text{Act Setup Hrs} - \text{Std Setup Hrs}) * \text{Std Setup Bdn}] + [(\text{Act Run Hrs} - \text{Std Run Hrs}) * \text{Std Run Bdn}]$ $\text{Std Setup Bdn} = (\text{Std Setup Rate} * \text{Lbr Bdn}\%) + \text{Lbr Bdn Rate} + (\text{Mach Bdn Rate} * \text{Mach/Op})$ $\text{Std Run Bdn} = (\text{Std Run Rate} * \text{Lbr Bdn}\%) + \text{Lbr Bdn Rate} + \text{Mach Bdn Rate}$
<p><b>Subcontract Rate</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>PO Receipt (5.13.1)</li> </ul>	$(\text{Subcontract PO Unit Cost} - \text{Subcontract Unit Cost from Routing}) * \text{Qty Received}$
<p><b>Subcontract Usage</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>WO Accounting Close (16.21)</li> <li>Post Accumulated Usage Variance (18.22.9)</li> <li>Cumulative Order Close (18.22.10)</li> </ul>	$[\text{Qty Received} - (\text{Op Qty Completed} + \text{Op Qty Rejected})] * \text{Subcontract Unit Cost from Routing}$
<p><b>Method</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>WO Accounting Close (16.21)</li> <li>Cumulative Accounting Close (18.22.10)</li> </ul>	<p>Balance of WO/ID value remaining</p>
<p><b>Mix (Co/By-Products)</b></p> <p>Calculated at:</p> <ul style="list-style-type: none"> <li>WO Accounting Close (16.21)</li> </ul>	$[\text{Order Qty} - (\text{Receipt Qty} + \text{Scrap Qty})] * \text{GL Unit Cost}$

## Variations by Transaction Flow

Variations by Transaction Flow
<p><b>PO Receipts</b></p> <p>Purchase Price Variance  <math>[PO \text{ Unit Cost} - (GL \text{ Unit Cost} - OH)] * PO \text{ Qty Received}</math></p> <p>Subcontract Rate Variance  <math>(Subcontract \text{ PO Unit Cost} - Subcontract \text{ Unit Cost from Routing}) * Qty \text{ Received}</math></p>
<p><b>Receiver Matching</b></p> <p>Accounts Payable Rate Variance  <math>(Invoice \text{ Unit Cost} - PO \text{ Unit Cost}) * Invoice \text{ Quantity}</math></p> <p>Accounts Payable Usage Variance  <math>(Invoice \text{ Qty} - PO \text{ Receipt Qty}) * PO \text{ Unit Cost}</math></p>
<p><b>Work Order Component Issue</b></p> <p>Material Rate Variance  <math>(WO \text{ BOM Unit Cost at Issue} - GL \text{ Unit Cost}) * Actual \text{ Qty Issued}</math></p>
<p><b>Labor Feedback</b></p> <p>Labor Rate Variance  <math>[(Actual \text{ Setup Rate} - Std \text{ Setup Rate}) * Actual \text{ Setup Hrs}] + [(Actual \text{ Run Rate} - Std \text{ Run Rate}) * Actual \text{ Run Hrs}]</math></p> <p>Labor Usage Variance  <math>[(Actual \text{ Setup Hrs} - Std \text{ Setup Hrs}) * Std \text{ Setup Rate}] + [(Actual \text{ Run Hrs} - Std \text{ Run Hrs}) * Std \text{ Run Rate}]</math>  <math>* Std \text{ Run Hrs} = Std \text{ Run Hrs} * (Qty \text{ Completed} + Qty \text{ Rejected})</math></p> <p>Burden Rate Variance  <math>[(Actual \text{ Setup Bdn} - Std \text{ Setup Bdn}) * Actual \text{ Setup Hrs}] + [(Actual \text{ Run Bdn} - Std \text{ Run Bdn}) * Actual \text{ Run Hrs}]</math></p> <p>Burden Usage Variance  <math>[(Act \text{ Setup Hrs} - Std \text{ Setup Hrs}) * Setup \text{ Bdn}] + [(Act \text{ Run Hrs} - Std \text{ Run Hrs}) * Run \text{ Bdn}]</math></p>
<p><b>Work Order Accounting Close</b></p> <p>Subcontract Usage Variance  <math>[Qty \text{ Received} - (Op \text{ Qty Completed} + Op \text{ Qty Rejected})] * Subcontract \text{ Unit Cost from Routing}</math></p> <p>Material Usage Variance  <math>\{Actual \text{ Qty Issued} - [qty \text{ per} * (qty \text{ completed} + qty \text{ rejected})]\} * GL \text{ Unit Cost}</math></p> <p>Method Variance</p>

## Components of Item Cost

Components of Item Cost	
<p><b>Material</b></p> <p><i>Dependent On</i></p> <p>Material/Purchase Price</p> <p>Quantity Per</p> <p>Scrap %</p> <p>Phantom</p> <p>Pur/Mfg</p> <p>Structure Type</p> <p>Yield %</p>	<p><i>Defined In</i></p> <p>Item Master Maintenance (1.4.1), (1.4.9), (1.4.18)</p> <p>Product Structure Maintenance (13.5), (15.5)</p> <p>Product Structure Maintenance (13.5), (15.5)</p> <p>Item Master Maintenance (1.4.1), (1.4.7), (1.4.17)</p> <p>Item Master Maintenance (1.4.1), (1.4.7), (1.4.17)</p> <p>Product Structure Maintenance (13.5)</p> <p>Routing Maintenance (14.13.1)</p>
<p><b>Labor</b></p> <p><i>Dependent On</i></p> <p>Work Center Labor Rates</p> <p>Work Center Setup Rates</p> <p>Run Time per Unit</p> <p>Setup Time per Lot</p> <p>Order Quantity</p> <p>Subcontract Cost</p>	<p><i>Defined In</i></p> <p>Work Center Maintenance (14.5)</p> <p>Work Center Maintenance (14.5)</p> <p>Routing Maintenance (14.13.1), (14.13.2)</p> <p>Routing Maintenance (14.13.1), (14.13.2)</p> <p>Item Master Maintenance (1.4.1)</p> <p>Routing Maintenance (14.13.1)</p>
<p><b>Burden</b></p> <p><i>Dependent On</i></p> <p>Work Center Labor Burden Rates</p> <p>Work Center Labor Burden Percent</p> <p>Work Center Machine Burden Rate</p> <p>Machines/Operation</p> <p>All of the items under Labor (above)</p>	<p><i>Defined In</i></p> <p>Work Center Maintenance (14.5)</p> <p>Work Center Maintenance (14.5)</p> <p>Work Center Maintenance (14.5)</p> <p>Work Center Maintenance (14.5)</p>

# Product Information Resources

QAD offers a number of online resources to help you get more information about using QAD products.

[QAD Forums \(community.qad.com\)](http://community.qad.com)

Ask questions and share information with other members of the user community, including QAD experts.

[QAD Knowledgebase \(knowledgebase.qad.com\)\\*](http://knowledgebase.qad.com)

Search for answers, tips, or solutions related to any QAD product or topic.

[QAD Document Library \(www.qad.com/documentlibrary\)](http://www.qad.com/documentlibrary)

Get browser-based access to user guides, release notes, training guides, and so on; use powerful search features to find the document you want, then read online, or download and print PDF.

[QAD Learning Center \(learning.qad.com\)\\*](http://learning.qad.com)

Visit QAD's one-stop destination for all courses and training materials.

\*Log-in required

