QAD

QAD Enterprise Applications
Enterprise Edition

Training Guide
Average Costing

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Contents

About this Course

Course Description

This QAD Average Costing training guide offers detailed instruction on setting up and using a General Ledger cost set that uses average costing.

This guide may be taught individually or as a part of the Product Costing & Cost Management course set.

Course Objectives

Provides the detailed instruction necessary to setup a General Ledger cost set that uses average costing.

Course Benefits

Allows a general ledger cost set to use cost averaging.

Audience

Finance personal who will be responsible for setting up an average cost system.

Prerequisites

Introduction to Costing, Product Costing, and Familiarity with the .NetUI

Course Credit & Scheduling

This course is valid for 3 credit hours. This course is typically taught in one half-day.

Virtual Environment Information

The hands-on exercises in this book should be used with the "Enterprise Edition 2010 - Addons r03 - Training" environment, in the "10USA > 10USACO" workspace.

QAD Web Resources

From QAD's main site, you can access QAD's Learning or Support sites.

http://www.qad.com/

Average Costing

Introduction

What Is Average Costing?

Average costing simply keeps a running average of what an item is costing. This is much different than standard costing, which predicts what an item should cost. With the average cost method, the average cost of the goods available for sale is not predefined by you; rather it is computed and the units in both cost of goods sold and ending inventory are costed at this average cost. It is a weighted average: Each unit cost is weighted by the number of units with that cost (see figure above.) In QAD Enterprise Applications, a new average unit cost is calculated after each receipt and optionally by AP supplier invoices.

How to Set Up Average Costing

Use QAD Enterprise Applications Cost Management to set the GL cost set to have a costing method of Average Cost. To create a cost set type GL with its method set to Average, it is necessary to create a new cost set by using Cost Set Maintenance (30.1), because you cannot modify the default GL Standard cost set—you can only set the cost set type when adding a new cost set. When you have created the new cost set of the type GL with the method Average, you may populate it with data, if you choose, by copying another cost set using Cost Set Copy to Cost Set (30.3). This new GL Average cost set may now be assigned to the appropriate sites by using Cost Set to Site Assignment (30.9).

Average Cost Considerations

In order to successfully use average costing, you need to maintain perpetual inventory balances, both in terms of quantity and for accounting purposes. The system assumes that the following is true.

- You must maintain physical inventory on a perpetual basis. When items are issued from inventory, the on-hand quantity is immediately decreased. When items are received on purchase orders or manufacturing orders, the on-hand quantity is immediately increased.

  The timing of transaction entry is absolutely vital. Because averaging is done based on quantity on-hand, these quantities must be accurate. Also, if you are using Cost by Operation Report, all components should be issued for the entire work order quantity prior to moving work to the next operation; otherwise costs will be misstated on this report.

- You must maintain accounting inventory on a perpetual basis. When items are issued from inventory, the Inventory account is immediately credited and the WIP or COGS accounts are debited. When items are received on purchase orders or manufacturing orders, the Inventory account is immediately debited and the WIP or PO Receipts account is immediately credited.

- You must not allow negative inventory balances. Use Inventory Status Codes to prevent overissuing. As you can see from the calculation a negative balance times the old average cost will yield a negative cost which when averaged with the new items at their cost will result in an answer that does not make sense. To prevent this in the case of a negative on hand the system uses the current receipt cost.

Once again, timing is important. If GL transactions are not generated immediately, they will not pick up the correct cost because cost changes each time a receipt is processed.

The accounting balance for inventory should at all times be equal to the quantity in inventory multiplied by today's average cost for the item. This ensures that the Inventory subsidiary ledger always balances to the general ledger.

Why Use Average Costing?

Average costing is primarily used in two situations:

- Hyperinflationary economies (where it may be a legal requirement)
- Commodity-based manufacturing environments

In both of these situations, it is almost impossible to predict what item costs should be (standard cost). In a hyperinflationary economy, prices rise explosively with inflation. In a commodity-based environment, commodity prices can fluctuate wildly. This is the case for many process manufacturers.

Example   A food processing company whose major ingredient is sugar may choose not to use standard costing because sugar prices normally cannot be predicted very accurately from one day to the next. Yet the company still needs to track sugar's actual price to accurately cost products and determine revenues.

In these types of environments, average costs are used. They track the movement of costs, on average, and provide a more realistic view of what inventory values and cost of sales actually are.

Note   Be aware that, as with any actual costing technique, average costing requires much more reporting detail than standard costing and requires much stricter procedural controls.

Example A company has an initial inventory of 5,000 items that cost 10.00 each for an on hand value of 50,000.00. This is a commodity item whose purchase price varies widely. The company wishes to compare the difference affects of standard versus average costing. The beginning balance of 50,000.00 is the same for either method.

If the company uses standard costing, with the standard set at 10.00 and purchases an addition 3,000 units at a cost of 20.00 each the value of inventory is 80,000.00, that is 8,000 units at the standard cost of 10.00. There is a purchase price variance of 30,000.00.

The cost of manufacturing would be understated (and revenue would be overstated).

Under an average cost system, the cost is re-averaged at the time of receipt.

$$[(5,000 \times 10.00) + (3,000 \times 20.00] / (5,000 + 3,000) = 13.75$$

The new value in inventory would be $(13.75 \times 8,000)$ or 110,000.00—a more accurate reflection of its cost.

Issues from inventory do not change the average value of the items just the total value on hand.

Standard costs can be used in an inflationary or commodity-based environment, but it is necessary to change standards very frequently (perhaps weekly or monthly).

Average Costs for Purchased Items

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.

To calculate average costs for materials, the following equation is used:

[(Receipt Qty × Receipt Cost) + (Item Qty On-hand × Current Material Cost)] / New Qty On-hand

Average Costs for Manufactured Items
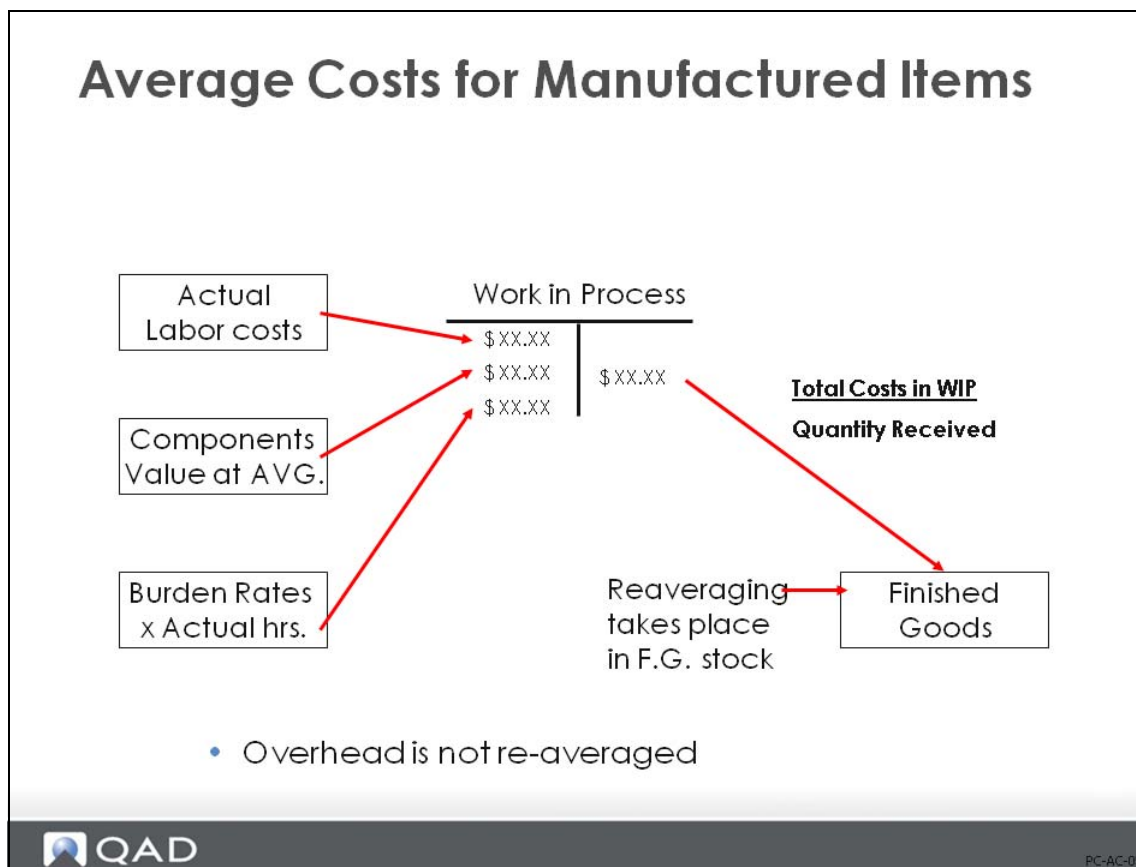
For manufactured items, the averaging process is more complex. When finished items are received, the average cost is calculated for the work order using the actual amounts that have been recorded in WIP. This average work order cost is used to calculate a new average cost for the item.

Average Cost Calculation

Average work order cost is calculated for material, labor, burden, and subcontract. Overhead is not included in the average cost calculation; it is considered a fixed cost.

To calculate average costs for manufactured items, the following equation is used:

(Item Qty Received / Cumulative Qty Completed at the Operation) × Operation's Cumulative WIP Cost

Example   Assembly A has three components: Comp1, Comp2, and Comp3.

1   A quantity of 20 is received for an Assembly A work order. First, the labor, burden, and subcontract cost categories are calculated. The table below uses Labor as an example.

Operation	Cum Qty Completed	Cum WIP Labor Cost, $	WO Receipt Cost Calculation, $
10	100	100	20 / 100 × 100 = 20
20	75	150	20 / 75 × 150 = 40
30	50	20	20 / 50 × 20 = 8

Operation	Cum Qty Completed	Cum WIP Labor Cost, $	WO Receipt Cost Calculation, $
40	40	50	$20 / 40 \times 50 = 25$
Total labor cost for 20 units:		93	

2 Next material cost is calculated for the three components used as shown below.

Qty Per Component Assembly	Qty Per Assembly	Unit Cost	WO Receipt Cost Calculation, $
Comp1	1	5	$(20 \times 1) \times 5 = 100$
Comp2	1	1	$(20 \times 1) \times 1 = 20$
Comp3	2	1	$(20 \times 2) \times 1 = 40$
Total material cost for 20 units:		160	

3 Finally, the work order receipt is re-averaged. There are 10 units in stock at an average unit cost of $12 each.

Cost for 20 units received = ($93 + 160) / 20 = $12.65

New average cost will be:

$(10 \times \$12) + (20 \times \$12.65) / (10 + 20) = \$12.43$

PO Receipts—Standard versus Average Costing

Earlier, we saw how Purchasing and Accounts Payable functions operate in a standard costing environment: All amounts are posted to the GL at standard and any difference between actual and standard costs are posted as variances. In an average costing environment, this is not the case. All amounts are posted to the GL at the actual cost. If the PO cost is different than the GL cost, the GL cost is simply re-averaged.

Example An item has a GL Material cost of $20 and a GL Overhead cost of $3. With a beginning inventory of zero, you receive one unit at a PO cost of $25. The result is that the GL cost is re-averaged—now the GL Material cost will be $25. (GL Overhead cost is unchanged.)

The following equation is used (which calculates average costs for materials):

[(Receipt Qty × Receipt Cost) + (Item Qty On-hand × Current Material Cost)] / New Qty On-hand

[(1 × $25) + (0 × $20)] / 1 = $25

The PO receipt created the following GL transactions:

DR	Inventory	$25	CR	PO Receipts	$25
DR	Inventory	$3	CR	Applied Ovh	$3

As with any other inventory type transaction, the GL transaction type is IC, but the transaction description is RCT-AVG po #. This indicates that this receipt caused the cost to be re-averaged.

Note   Reaveraging only happens if the PO specifies Update Avg/Last = Yes. If set to No, the standard costing algorithms apply, even if the GL costs are Average. PO returns are considered issues, not receipts and do not re-average cost.

If this PO is vouchered at a cost of $30 at the time of entry, you have the option of posting the extra $5 to a variance account or to inventory. If you choose variance, the $5 is posted to the AP Rate Variance account. If you choose Inventory, the $5 is posted to Inventory and the cost is re-averaged (from $25 to $30).

Work Order Receipts — Standard versus Average Cost

In a standard costing environment, all amounts are posted at standard and variances track differences between actual and standard. In an average costing environment, this is not the case. Everything posts at actual costs. If these are different than the GL cost, the cost is re-averaged. This ensures that all work order costs are reflected in inventory.

GL and current cost is re-averaged by the Work Order Receipt function by the following rules:

- Only Lower-Level Material cost is re-averaged. This-Level Material cost is not.

- Overhead is considered fixed. It is not re-averaged.

- Costs are always recalculated on a category-by-category basis, even when the totals are the same, in order to cover the situation when items that are usually purchased are made in-house (or when items that are usually made in-house are purchased).

- Subcontract cost for an item is normally not re-averaged until Work Order Receipt. However, if the PO receipt does not specify a valid work order and operation, subcontract cost for the item will be re-averaged at that time.

- Average cost calculations include only costs that have been reported before the work order receipt is processed. Costs posted after the receipt are included in the averaging calculation done by the next receipt.

- The Operation Completion transaction will post operation costs at standard if none are reported. Be sure to run this before you process receipts. Unlike under standard costing, the accounting close does not complete unreported operations at standard.

Average Cost Calculations

We will first look at a simple example, followed by more complicated situations.

Example   There are three units in stock with a total GL cost of $2.50 each. We have a work order for 10 units: $10 of material is issued to this work order and $20 of labor. A work order receipt is processed for all 10 units.

The new average cost is calculated as follows:

> The unit cost of the items in WIP = $30 / 10 units = $3
> The new average cost = [(3 units × $2.50) + (10 units × $3)] / 13 units = $2.89

Rejects

How do rejects get factored into average costs? As in a standard costing environment, it depends upon how you report them—as rejects or as in-process losses.

- Rejects are reported on the Work Order Receipt. For example, if we received 9 units, rejected 1 unit, and closed the work order, the result would be:

  > The unit cost of the items in WIP = $30 / 10 units = $3
  > The new average cost = [(3 units × $2.50) + (9 units × $3)] / 12 units = $2.88

- In-process losses are not reported as rejects. On the work order receipt, you would receive 9 units and close the work order. The result:

  > The unit cost of the items in WIP = $30 / 9 units = $3.33
  > The new average cost = [(3 units × $2.50) + (9 units × $3.33)] / 12 units = $3.12

Partial Receipts

Because QAD Enterprise Applications allows partial receipts, average cost calculations use a modified process costing algorithm. In a process cost system, costs are not identified with specific units; instead, all costs are accumulated and divided by the total number of units produced to arrive at an average cost. Because partial receipts may have included some of the cost, the amount to apply to inventory equals the sum of:

[remaining cost × (qty being received / remaining qty)] at each operation.

1 We will use the same example of the work order for 10 units. The WIP cost of $30 represents work at a single operation for all 10 units. No receipts have been processed. Now, process a receipt for one finished unit. Because we received only one of the 10 items manufactured at that operation, it seems logical that only one-tenth of the WIP cost will be used to re-average the cost.

The unit cost of the items in WIP = $30 / 10 units = $3
The new average cost = [(3 units × $2.50) + (1 unit × $3)] / 4 units = $2.63

2 Now add another $10 of Labor to WIP. Total WIP cost is $40. But some of this has already been averaged into inventory. When you receive additional units on this work order, this must be factored in before you can re-average cost.

WIP cost remaining to be averaged = $10 + [(9 / 10) × $30] = $37

The unit cost of items in WIP = $37 / 9 units = $4.11

The new average cost = [(4 units × $2.63) + (1 unit × $4.11)] / 5 units = $2.93

Note Because work order quantity can be changed, it is not used in these calculations—the system uses only quantity completed at each operation and work order receipt quantity.

Work Order Accounting Close

Generally, when a work order has been fully received, all work order costs are posted to inventory. However, this may not happen if:

1 More units have been completed at an operation than have been received

2 More materials have been issued than needed for the quantity received

3 Additional labor is reported or material issued after work order has been fully received

If you flag the work order as closed when processing the final Work Order Receipt, excess labor and material costs are simply averaged into Inventory.

If you close the work order by setting the status to [C]losed in Work Order Maintenance or if additional labor and material are reported after work order receipt, then the resulting balance in WIP at accounting close is handled as follows:

1 If quantity on-hand at work order site is not less than work order quantity received, then excess is added to Inventory and the average cost recalculated

2 If the quantity on-hand at the work order site is less than the work order quantity, then only part of the work order quantity can be averaged into Inventory. The remainder is posted as an Inventory Discrepancy.

Example You receive 100 units into stock. You post another $250 of labor cost against this order. If there are only 75 units left in stock when you process the Work Order Accounting Close, only 75/100 of the $250 can be averaged into inventory ($187.50). If the This-Level Labor was $2, the new This-Level Labor cost would be: [(75 units × $2) + 187.50] / 75 Units = $4.50. The remaining $62.50 ($250 - $187.50) would be posted to Inventory Discrepancy.

Information Sources

Average Cost Accounting Report (3.21.17)

Reports physical inventory transactions (receipts) that impact average GL costs. Selected according to user-specified parameters. Quantity, unit cost, and inventory value data are shown for the beginning balance data, the change data, and the ending balance data for each item number in sequence. The report also shows Site ID, Type of transaction, Transaction number, GL reference ID, and Credit account number.

Multi-Site Transfers—Standard to Average

Accounting for inventory transfers that take place between two sites using different costing methods looks the same from a GL perspective. The same debits and credits are created, for the same accounts. The only difference is the amounts and how they are determined.

For example, we have two sites, A and B. Both have a beginning on-hand quantity of 10 units. Site A is a standard cost site. The standard cost for Material is $5 and Overhead $2 (total standard cost = $7). Site B is an average cost site. At this time the average material cost is $10. There is no overhead cost.

If we transfer all 10 units from site A to site B, we will get the following GL transactions:

1 Issue the units from inventory at site A

<div align="center">DR   Inventory $70   CR   Inventory $70</div>

2 Transfer the units to site B

<div align="center">DR Transfer Variance $70   CR Intercompany $70</div>

3 Process the receipt at site B. First, average cost is re-averaged:

Cost Re-average = [(10 units $\times$ $10) + (10 units $\times$ $5)] / 20 units = $7.50

Note Average cost calculations do not include Overhead amounts. Overhead is assumed to be fixed and is not re-averaged.

4 Update inventory to reflect the items received

After the receipt of 10 units, the new value of inventory will be $150 (20 units at $7.50 each). Right now the inventory value is only $100 (10 units at $10 each). In order to bring inventory up to the correct value, the system creates the following GL transaction:

DR   Inventory $50   CR   Transfer Variance $50

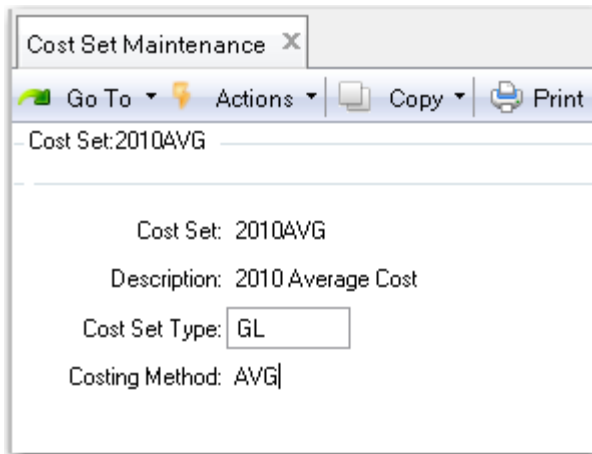The result of this process is a new average cost of $7.50, an inventory value of $150, and a transfer variance of $50. Because the difference in material costs was simply absorbed into inventory, the transfer variance reflects only the Overhead amount. If there had been no Overhead cost, you would have seen only one GL transaction at the receiving site.

DR   Inventory $50   CR   Intercompany $50

Exercise 1: Setting up Average Costing

In this activity you will create a new cost set and implement it as the GL (general ledger) cost set for average costing.
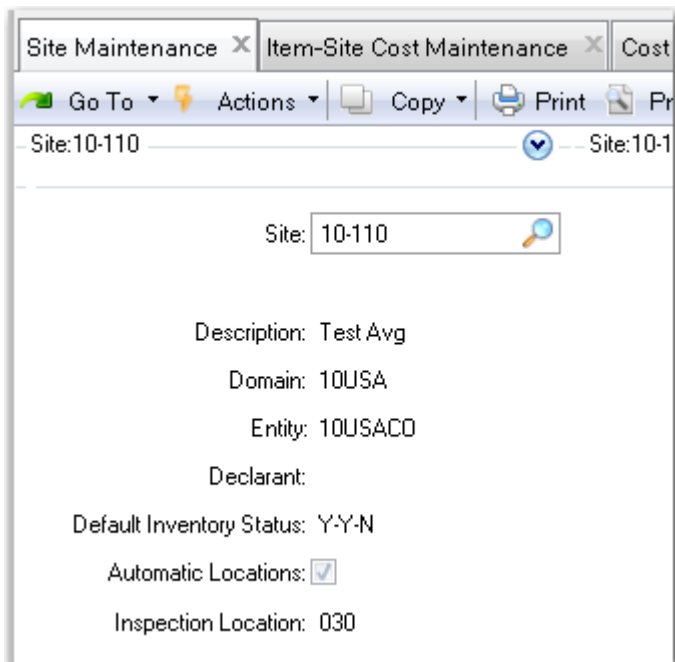
1 Use Cost Set Maintenance 30.1 to create a new cost set. The cost set name or code is not important, nor is the description, but insure the Cost Set Type is GL and the Costing method is AVG.

2 Create a new site 10-110, use site maintenance 1.1.13 set the status code to Y-Y-N to prevent over issues. Note: you cannot change the costing method of a site that has open work orders.

3 Use Cost Set to Site Assignment 30.9 to assign the new cost set to the new site. Leave the current cost set field blank for the system default set.

4 Use Cost Set Copy to Cost Set, 30.3 to copy some data into the new cost set. You will use a limited number of items from the training database for this exercise.

Copy from site 10-100 - standard to site 10-110 - 2010AVG, use items 6001 - 60004

Review the report the copy function generates.

Item Number	UM		Material	Labor	Burden	Overhead	Subcontract
Cost Total							
60001	EA	Standard	127.00	0.00	0.00	0.00	0.00
127.00							
Durable Plastic Ho		2010AVG	0.00	0.00	0.00	0.00	0.00
0.00							
		New Cost	127.00	0.00	0.00	0.00	0.00
127.00							
		% Change	100,000+ %	0.0%	0.0%	0.0%	0.0%
100,000+ %							
		GL Amt Chg	127.00	0.00	0.00	0.00	0.00
127.00							
60002	EA	Standard	122.00	0.00	0.00	0.00	0.00
122.00							
Display / Readout		2010AVG	0.00	0.00	0.00	0.00	0.00
0.00							
		New Cost	122.00	0.00	0.00	0.00	0.00
122.00							
		% Change	100,000+ %	0.0%	0.0%	0.0%	0.0%
100,000+ %							
		GL Amt Chg	122.00	0.00	0.00	0.00	0.00
122.00							
60003	EA	Standard	55.00	0.00	0.00	0.00	0.00
55.00							
Keyboard		2010AVG	0.00	0.00	0.00	0.00	0.00
0.00							
		New Cost	55.00	0.00	0.00	0.00	0.00
55.00							
		% Change	100,000+ %	0.0%	0.0%	0.0%	0.0%
100,000+ %							
		GL Amt Chg	55.00	0.00	0.00	0.00	0.00
55.00							
60004	EA	Standard	15.00	0.00	0.00	0.00	0.00
15.00							
Transducer - 10 Mh		2010AVG	0.00	0.00	0.00	0.00	0.00
0.00							
		New Cost	15.00	0.00	0.00	0.00	0.00
15.00							
		% Change	100,000+ %	0.0%	0.0%	0.0%	0.0%
100,000+ %							
		GL Amt Chg	15.00	0.00	0.00	0.00	0.00
15.00							

Cost Set Copy to Cost Set   10/
10USA

This report shows the GL cost of the items copied. The item was in a standard cost site, it is now in an average cost site.

5 Use item site cost maintenance 1.4.18 to review these costs.

6 Use inventory detail by item browse (3.2) starting with item 60001. You should have inventory of the 60001, 60002, and 60003 at site 10-100

7 Use transfer - single Item to transfer 10 each of the 60001, 60002, and 60003 from site 10-100 to site 10-110. Check Yes on the pop up "Use to Status." Electronic signatures are implemented in this database, when prompted for user ID enter qmi or the user ID you used to log onto the system. For the reason code use Active.

8 Use inventory valuation report 3.6.13, for site 10-110,

This is your total inventory and it's cost and value for site 10-110 at this time.

9 Create a purchase order for these three items, 60001 - 60003. Use 5.7 let the system assign the PO number, use supplier code 10S1002, Bridgeville Industries. In the lower frame of the header enter site 10-110 in the site field. Advance to the line item screen. Note the PO number.

On line 1, use the enter key to get to the item number field, enter 60001, order 10 of them. Note the price field defaults to the cost in the system. Change the price to 150.00.

Use the enter key accepting the default values until you return to line 2. Buy 10 each of the 60002 at a price of 140.00.

On line 3, buy 10 each of the 60003 at a price of 75.00. When you are back at line 4, click the button End Lines, then click Trailer. At the trailer click next until the PO is complete.

10 Receive the PO complete. Use 5.13.1, in the header check the box "Receive All" complete the receipt transaction by clicking through the screens.

11 Run the inventory valuation report again. You will see that the inventory of units has doubled and the cost has been re-averaged and the total value updated to reflect the current average cost.

```
                            Inventory Valuation Report                        10/08/10 11:31
                                      10USA                                           Pag

Product Line:    20    Purchased-Ext Supplier      Cost Set:   GL          Cost Set:    Current

                     Site      Qty On Hand
Item Number          ABC            UM       GL Cost    Extended Cost       Cost    Extended Cost  Var Pct
--------------------------- -------- -------------- ---------------- ------------------- ---------------- ------------------- --------
60001                10-110         20.0        144.125         2,882.50    144.125         2,882.50    0.0%
  Durable Plastic Housing       EA
                                             Item Total:         2,882.50                    2,882.50    0.0%
60002                10-110         20.0        131.00          2,620.00    131.00          2,620.00    0.0%
  Display / Readout             EA
                                             Item Total:         2,620.00                    2,620.00    0.0%
60003                10-110         20.0         65.00          1,300.00     65.00          1,300.00    0.0%
  Keyboard                      EA
                                             Item Total:         1,300.00                    1,300.00    0.0%
                                             Prod Line Total:    6,802.50                    6,802.50    0.0%
                                             Report Total:       6,802.50                    6,802.50    0.0%
```

You have created an average cost site, and seen how the system re-averages the GL cost whenever a new receipt occurs.

Average Cost Exceptions

When you understand how average costs are calculated, it should be apparent that you would get undesirable results in the following cases.

- Beginning quantity is less than zero
- Receipt quantity is less than zero, resulting in an ending quantity less than zero
- The cost of the items returned to the supplier results in a negative cost

To account for such situations, QAD Enterprise Applications average costing does the following:

1. If the ending quantity is less than zero, the system assumes that the new average cost is the same as the new unit receipt cost. To account for this, the amount of:

   (New Average Cost - Old Average Cost) × (Old Qty On-hand)

   is debited to Inventory and credited to the Discrepancy account before the receipt is posted. The new average cost will be the new unit receipt cost.

2. If a receipt (positive or negative) will result in a large distortion in average cost—for example, the quantity to be received is less than zero and the ending quantity is less than or equal to zero—this is considered an exception condition and is handled as noted above.

In both of these situations, the discrepancy is created so that you can manually manage it by making an adjusting entry.

Average cost will not correct previously entered transactions. That is why the sequence is so important.

Appendix A

Variances and Components Reference

Purchase-Related Variances	
Purchase Price	
Calculated at PO Receipts, 5.13.1	[PO Unit Cost - (GL Unit Cost - OH)] x PO Qty Rcv'd
Reports: Transaction Receipts Report, 5.9.14; Transactions Detail Inquiry, 3.21.1	
AP Rate	
Calculated at Supplier Invoice Create, 28.1.1.1	(Invoice Unit Cost - PO Unit Cost) x Invoice Qty
Reports: Matching Variance Rpt. 28.2.7 Transactions Detail Inquiry, 3.21.1	
AP Usage	
Calculated at Supplier Invoice Create, 28.1.1.1	(Invoice Qty - PO Receipt Qty) x PO Unit Cost
Reports: Matching Variance Rpt. 28.2.7; Transactions Detail Inquiry, 3.21.1	
Manufacturing-Related Variances	
Material Rate	
Calculated at WO Component Issue, 16.10; WO Receipt Backflush, 16.12; Repetitive Backflush, 18.22.13	(WO BOM Unit Cost at Issue - GL Unit Cost) x Actual Qty Iss'd
Reports: Work Order Cost Report, 16.3.4; Transactions Detail Inquiry, 3.21.1	
Material Usage	
Calculated at WO Accounting Close, 16.21; Cum Order Close, 18.22.10; Post Accumulated Usage Var, 18.22.9	{Actual Qty Issued - [qty per x (qty completed + qty rejected)]} x GL Unit Cost
Reports: Work Order Cost Report, 16.3.4; Transactions Detail Inquiry, 3.21.1; Repetitive Operations Accounting Report, 18.22.4.9	
Labor Rate	
Calculated at SFC feedback, 16.20.1, 16.20.2, 16.20.3; can be deferred until WO Receipt, 16.11, 16.12; Repetitive Backflush, 18.22.13	Per Operation: [(Actual Set-Up Rate - Std Set-Up Rate) x Actual Set-Up Hrs] + [(Actual Run Rate - Std Run Rate) x Actual Run Hrs] Set-up 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 No variances if no labor reporting
Reports: Work Order Cost Report, 16.3.4; Operations Accounting Rpt, 16.20.13.10; Rep Ops Accounting Rpt, 18.22.4.9	
Labor Usage	
Calculated at SFC feedback, 16.20.1, 16.20.2, 16.20.3; can be deferred until WO Receipt, 16.11, 16.12; Post Accumulated Usage Var, 18.22.9; Cum Accounting Close, 18.22.10	Per Operation: [(Actual Set-Up Hrs - Std Set-Up Hrs) x Std Set-Up Rate] + [(Actual Run Hrs - *Std Run Hrs) x Std Run Rate] *Std Run Hrs = Std Run Hrs x (Qty Completed + Qty Rejected)
Reports: WO Cost Report, 16.3.4; Operations Accounting Rpt, 16.20.13.10; Rep Ops Accounting Rpt, 18.22.4.9	

Burden Rate

Calculated at SFC feedback, 16.20.1, 16.20.2, 16.20.3; WO Receipt, 16.11, 16.12; Repetitive Backflush, 18.22.13

Reports:
WO Cost Report, 16.3.4;
Operations Accounting Rpt, 16.20.13.10;
Rep Ops Accounting Rpt, 18.22.4.9

Per Operation:

[(Actual Set-Up Bdn - Std Set-Up Bdn) x Actual Set-Up Hrs] + [(Actual Run Bdn - Std Run Bdn) x Actual Run Hrs]

Actual Set-Up Bdn = (Actual Set-Up Rate x Lbr Bdn %) + Lbr Bdn Rate + (Mach Bdn Rate x Mach/Op)

Std Set-Up Bdn = (Std Set-Up Rate x Lbr Bdn %) + Lbr Bdn Rate + (Mach Bdn Rate x Mach/Op)

Actual Run Bdn = (Actual Run Rate x Lbr Bdn %) + Lbr Bdn Rate + Mach Bdn Rate

Std Run Bdn = (Std Run Rate x Lbr Bdn %) + Lbr Bdn Rate + Mach Bdn Rate

Burden Usage

Calculated at SFC feedback, 16.20.1, 16.20.2, 16.20.3; can be deferred until WO Receipt, 16.11, 16.12; Post Accumulated Usage Var, 18.22.9; Cum Order Close, 18.22.10;

Reports:
WO Cost Report, 16.3.4;
Operations Accounting Rpt, 16.20.13.10;
Rep Ops Accounting Rpt, 18.22.4.9

Per Operation:

[(Act Set-Up Hrs - Std Set-Up Hrs) x Std Set-Up Bdn] + [(Act Run Hrs - Std Run Hrs) x Std Run Bdn]

Std Set-Up Bdn = (Std Set-Up Rate x Lbr Bdn %) + Lbr Bdn Rate + (Mach Bdn Rate x Mach/Op)

Std Run Bdn = (Std Run Rate x Lbr Bdn %) + Lbr Bdn Rate + Mach Bdn Rate

Subcontract Rate

Calculated at PO Receipt, 5.13.1

(Subcontract PO Unit Cost - Subcontract Unit Cost from Routing) x Qty Received

Subcontract Usage

Calculated at WO Accounting Close, 16.21; Post Accumulated Usage Var, 18.22.9; Cum Order Close, 18.22.10

[Qty Received - (Op Qty Completed + Op Qty Rejected)] x Subcontract Unit Cost from Routing

Method

Calculated at WO Accounting Close, 16.21; Cum Accounting Close, 18.22.10

Balance of WO/ID value remaining

Mix (Co/By-Products)

Calculated at WO Accounting Close, 16.21

[Order Qty - (Receipt Qty + Scrap Qty)] x GL Unit Cost

QAD

Variances by Transaction Flow

PO Receipts

Purchase Price Variance

[PO Unit Cost - (GL Unit Cost - OH)] x PO Qty Rcv'd

Subcontract Rate Variance

(Subcontract PO Unit Cost - Subcontract Unit Cost from Routing) x Qty Received

Voucher Maintenance

Accounts Payable Rate Variance

(Invoice Unit Cost - PO Unit Cost) x Invoice Qt

Accounts Payable Usage Variance

(Invoice Qty - PO Receipt Qty) x PO Unit Cost

Work Order Component Issue

Material Rate Variance

(WO BOM Unit Cost at Issue - GL Unit Cost) x Actual Qty Iss'd

Labor Feedback

Labor Rate Variance

[(Actual Set-Up Rate - Std Set-Up Rate) x Actual Set-Up Hrs] + [(Actual Run Rate - Std Run Rate) x Actual Run Hrs]

Labor Usage Variance

[(Actual Set-Up Hrs - Std Set-Up Hrs) x Std Set-Up Rate] + [(Actual Run Hrs - *Std Run Hrs) x Std Run Rate]

*Std Run Hrs = Std Run Hrs x (Qty Completed + Qty Rejected)

Burden Rate Variance

[(Actual Set-Up Bdn - Std Set-Up Bdn) x Actual Set-Up Hrs] +
[(Actual Run Bdn - Std Run Bdn) x Actual Run Hrs]

Burden Usage Variance

[(Act Set-Up Hrs - Std Set-Up Hrs) x Set-Up Bdn] + [(Act Run Hrs - Std Run Hrs) x Run Bdn]

Work Order Accounting Close

Subcontract Usage Variance

[Qty Received - (Op Qty Completed + Op Qty Rejected)] x Subcontract Unit Cost from Routing

Material Usage Variance

{Actual Qty Issued - [qty per x (qty completed + qty rejected)]} x GL Unit Cost

Method Variance

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