

# MANUFACTURING OPERATIONS ACCOUNTING & CLOSE PROCESS

## Project Overview & Documentation

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**Date:** December 31, 2024

**Organization:** ABC Steel Manufacturing Facility

**Period:** Month-End Close – December 2024

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## EXECUTIVE SUMMARY

This project demonstrates a comprehensive end-to-end manufacturing accounting and close process for a mid-sized steel production facility. The Excel workbook simulates real-world operational accounting requirements including month-end journal entries, bank reconciliation, inventory management, accounts payable reconciliation, freight cost analysis, weekly spending tracking, budget variance analysis, and quarterly forecasting.

The workbook integrates eight interconnected tabs designed to support management decision-making, internal audit requirements, and financial reporting accuracy. All processes include automated controls, reconciliation procedures, and audit-ready documentation.

**Key Deliverable:** 8-Tab Excel Workbook with integrated formulas, reconciliations, and variance analysis supporting \$6.8M+ in monthly operational expenses.

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## PROJECT SCOPE & OBJECTIVES

### Primary Objectives:

1. **Month-End Close Automation** – Systematize accrual entries and ensure balanced journal entry posting
2. **Financial Reconciliation** – Verify bank balances, accounts payable, and general ledger alignment
3. **Inventory Management** – Track aging inventory and calculate obsolescence reserves by product type
4. **Cost Analysis** – Monitor freight expenses, identify cost-efficient carriers, and optimize logistics spending

5. **Performance Reporting** – Compare actual spending to budget and identify variances by category
6. **Operational Planning** – Build forward-looking quarterly forecasts with sensitivity analysis

**In-Scope Activities:**

- Design and populate 8 Excel tabs with manufacturing data
- Create automated formulas for reconciliation and analysis
- Implement data validation and error-checking controls
- Prepare audit-ready documentation with clear references
- Develop variance analysis and trend reporting

## WORKBOOK STRUCTURE & TAB DESCRIPTIONS

### TAB 1: MONTH-END JOURNAL ENTRIES

**Purpose:** Record and track all month-end accruals, reversals, and adjustments in a controlled, auditable format.

**Key Components:**

- 10 sample journal entries covering raw materials, labor, overhead, utilities, depreciation, and freight accruals
- GL account mapping with debit/credit columns for balance verification
- Automated debit/credit reconciliation check (Target: \$0 difference)
- Status tracking (Posted, Pending, Rejected)

**Controls:** Debit-credit balance verification ensures mathematical accuracy before posting to GL.

**Total December Accruals:** \$613,250

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### TAB 2: BANK RECONCILIATION

**Purpose:** Verify that the company's bank account balance matches the general ledger cash balance, accounting for timing differences.

**Key Components:**

- Bank statement balance: \$2,450,000
- Outstanding checks (4 items): -\$29,400
- Deposits in transit (2 items): +\$68,000
- GL cash balance: \$2,488,600
- Automated reconciliation difference calculation

**Controls:** Reconciliation difference must equal \$0 to confirm accuracy. Current status: RECONCILED ✓

**Supporting Detail:** Bank statement activity log tracking deposits, withdrawals, and ending balance for audit trail.

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### **TAB 3: INVENTORY AGING & OBSOLESCENCE RESERVES**

**Purpose:** Track inventory by age and calculate valuation reserves for slow-moving and obsolete materials.

**Key Components:**

- 6 SKUs tracked with on-hand quantities and unit costs
- Total inventory value: \$1,449,000
- Obsolescence reserve calculation based on shelf age (0% current, 75% over 14 months)
- Reserve percentages determined by months on shelf:
  - 0-3 months: 0% reserve
  - 3-6 months: 5% reserve
  - 6-9 months: 25% reserve
  - 9-12 months: 50% reserve
  - 12+ months: 75% reserve
- Total obsolescence reserve: \$330,575 (22.8% of inventory)
- Net inventory value: \$1,118,425

**Methodology:** Reserve percentages align with historical obsolescence rates and industry standards for steel manufacturing. Specialty alloys and slow-moving SKUs carry highest reserves.

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### **TAB 4: GRIR & ACCOUNTS PAYABLE RECONCILIATION**

**Purpose:** Ensure all goods received are properly recorded and matched to purchase orders and invoices (Matching Principle).

**Key Components:**

- 6 purchase receipts logged with PO numbers, vendors, quantities, and amounts
- Total GRIR: \$14,180
- Invoice status tracking (Invoiced vs. Not Yet Invoiced)

- Outstanding GRR (not yet invoiced): -\$6,530
- Amount in AP (invoiced): \$7,650

**Accounts Payable GL Balance:** \$285,000 (represents full month including prior period)

**Control:** GRIR amount matches invoiced AP. Status: RECONCILED ✓

**Key Finding:** 2 purchase orders remain in "Not Yet Invoiced" status, indicating receipt before invoice documentation (normal timing difference). These will be accrued as liabilities until invoice receipt.

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## TAB 5: FREIGHT EXPENSE TRACKING

**Purpose:** Monitor and analyze freight costs by carrier to optimize logistics spending and identify cost trends.

### Key Components:

- 6 shipments tracked with destination, carrier, weight (lbs), and cost
- Carrier Performance Analysis:
  - **FedEx:** 1 shipment, 2,500 lbs, \$875, **\$0.35/lb**
  - **XPO Logistics:** 2 shipments, 8,800 lbs, \$2,980, **\$0.34/lb** ✓ Best Rate
  - **J.B. Hunt:** 1 shipment, 3,200 lbs, \$1,120, **\$0.35/lb**
  - **Old Dominion:** 1 shipment, 4,500 lbs, \$1,575, **\$0.35/lb**
  - **FedEx Freight:** 1 shipment, 6,000 lbs, \$2,100, **\$0.35/lb**

### Summary Metrics:

- Total shipments: 6
- Total weight: 28,000 lbs
- Total freight cost: \$8,650
- Average cost: \$0.309/lb (blended rate)

**Strategic Insight:** XPO Logistics offers best rate at \$0.34/lb. Recommend increasing volume with XPO to achieve scale efficiencies. FedEx and FedEx Freight priced identically at \$0.35/lb but serve different service levels.

## TAB 6: WEEKLY SPENDING REPORT

**Purpose:** Track cumulative weekly spending to monitor cash flow, identify spending trends, and detect anomalies.

### Key Components:

- 7 expense categories tracked across 4 weeks
- Weekly breakdown:
  - Week 1: \$240,900
  - Week 2: \$235,050
  - Week 3: \$242,330
  - Week 4: \$227,750
- Monthly total spend: \$946,030
- Monthly budget: \$940,750
- **Over budget: \$5,280 (0.6% variance)**

### Trend Analysis:

- Highest week: Week 3 at \$242,330 (production ramp-up)
- Lowest week: Week 4 at \$227,750 (year-end slowdown)
- Average weekly: \$236,508
- Trend: STABLE with minor weekly fluctuations

### By Category (% of spend):

- Raw Materials: 60.8%
  - Direct Labor: 25.1%
  - Manufacturing Overhead: 9.2%
  - All other: 4.9%
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## TAB 7: BUDGET VS. ACTUAL ANALYSIS

**Purpose:** Measure financial performance against annual budget and identify areas of variance for management review.

**Key Metrics (Year-to-Date):**

- Total annual budget: \$12,787,000
- YTD budget (12 months): \$12,787,000
- YTD actual spend: \$12,889,130
- **Total variance: +\$102,130 (0.8% unfavorable)**

**Variance Breakdown by Account:**

Account	Annual Budget	YTD Actual	Variance	Status
Direct Labor	\$2,880,000	\$2,847,500	-\$32,500	FAVORABLE
Raw Materials	\$6,720,000	\$6,845,200	+\$125,200	UNFAVORABLE
Depreciation	\$510,000	\$510,000	\$0	ON TARGET
Freight & Shipping	\$144,000	\$141,230	-\$2,770	FAVORABLE
Manufacturing Overhead	\$1,047,000	\$1,052,100	+\$5,100	UNFAVORABLE
Plant Maintenance	\$168,000	\$172,800	+\$4,800	UNFAVORABLE
Supplies & Misc	\$114,000	\$115,200	+\$1,200	UNFAVORABLE
Utilities	\$204,000	\$205,800	+\$1,800	UNFAVORABLE

**Key Findings:**

- **Favorable Variances:** Labor management achieved -\$32,500 savings; Freight optimization saved -\$2,770
- **Unfavorable Variances:** Raw materials exceeded budget by \$125,200 (1.9% over), likely due to commodity price increases and production volume
- **Overall Status:** Within 1% tolerance; no material variance investigations required
- **Recommendation:** Monitor raw material costs in Q1 2025; consider supplier negotiations or process optimization

**TAB 8: QUARTERLY FORECAST**

**Purpose:** Project operating expenses for Q1 2025 based on historical trends, seasonal factors, and operational assumptions.

**Forecast Base (December Actual):**

Category	December Actual	Growth %	Q1 Forecast	Basis
Raw Materials	\$576,000	+2.5%	\$1,764,000	Production +2.5%
Direct Labor	\$237,500	+1.0%	\$720,000	Headcount stable
Manufacturing OH	\$87,250	+1.5%	\$265,688	Utilization 85%
Utilities	\$13,450	+3.0%	\$41,500	Winter rates increase
Freight & Shipping	\$11,655	0.0%	\$34,965	Volume dependent
Maintenance	\$14,075	+5.0%	\$44,288	Scheduled maintenance

**Q1 2025 Base Case Forecast: \$2,870,441**

**Sensitivity Analysis:**

Scenario	Impact	Probability
Base Case	\$2,870,441	60%
+5% Volume Growth	+\$143,522	20%
+3% Inflation	+\$96,215	15%
-2% Decline	-\$57,409	5%

**Contingency Risks & Opportunities:**

- **Risk:** Steel price spike (+\$50K impact, medium probability) – Mitigation: Lock in long-term supply contracts
  - **Risk:** Supply chain delay (2-week disruption, low probability) – Mitigation: Identify secondary suppliers
  - **Opportunity:** Demand upside (+\$100K revenue gain, medium probability) – Requires production increase
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## **CONTROL PROCEDURES & AUDIT READINESS**

### **Automated Controls Implemented:**

1. **Debit-Credit Reconciliation** – Journal entries automatically balanced (JE tab)
2. **Bank Reconciliation Check** – Difference must equal \$0 (Bank Rec tab)
3. **GRIR-to-AP Matching** – All goods received traced to AP (GRIR tab)
4. **Formula Validation** – All calculations use SUMIF, COUNTIF, IF logic with cell references
5. **Data Validation** – Status fields use dropdown lists to prevent entry errors
6. **Variance Thresholds** – Budget variance flagging for items >2% off target

### **Audit Documentation Provided:**

- Source data organized by transaction date
- Clear GL account mapping with descriptions
- Reconciliation tie-back procedures documented
- Formula logic transparently referenced
- Supporting calculations visible on each tab

### **Reconciliation Status (All Complete):**

- ✓ Bank reconciliation: \$0 difference
- ✓ Journal entries: Debits = Credits
- ✓ GRIR = AP reconciliation: Matched
- ✓ Freight cost analysis: Validated by carrier
- ✓ Weekly spending: Trended and analyzed
- ✓ Budget variance: Exceptions identified
- ✓ Forecast: Built with documented assumptions

## KEY INSIGHTS & RECOMMENDATIONS

### Inventory Management:

- Obsolescence reserve of \$330,575 indicates aged inventory requiring clearance action
- Specialty Alloy (STL-006) at 75% reserve suggests demand assessment needed
- Consider liquidation or recycling strategy for items >12 months on shelf

### Freight Optimization:

- **Immediate Action:** Consolidate shipments with XPO Logistics (best rate at \$0.34/lb) to achieve volume discounts
- Reduce FedEx Freight volume in favor of XPO to save ~\$0.01/lb across 6,000 lb shipments
- Potential monthly savings: \$600+ if volume shifted

### Budget Performance:

- Raw materials variance (\$125,200 over) requires root cause analysis
  - Is this commodity price inflation, or volume increase?
  - Recommend supplier cost reduction negotiation
- Labor savings of \$32,500 demonstrates good workforce planning
- Maintenance spending on target despite \$4,800 overrun (planned maintenance)

### Financial Planning:

- Q1 2025 forecast of \$2.87M includes 2.5% growth assumption
- Recommend scenario planning for potential 5% volume upside (\$143K additional investment)
- Monitor commodity prices weekly given raw material sensitivity

## CONCLUSION

This manufacturing accounting project successfully demonstrates proficiency in core operational accounting competencies: month-end close procedures, financial reconciliation, inventory valuation, cost analysis, performance reporting, and forward planning. The integrated Excel workbook provides a scalable model for real-world manufacturing operations supporting both tactical (daily) and strategic (quarterly) decision-making.

**Deliverable Status:** COMPLETE

**Reconciliations:** ALL BALANCED

**Audit Readiness:** DOCUMENTATION COMPLETE

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**Attachments:** [Operations Accounting ^L0 Close Process.xlsx](#)